

Managing Your Network Using the HTTP Server

BayRS Version 13.00
Site Manager Software Version 7.00

BCC Version 4.05

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Bay Networks

Where Information Flows.™



4401 Great America Parkway
Santa Clara, CA 95054

8 Federal Street
Billerica, MA 01821

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Tables

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This guide describes the Hypertext Transfer Protocol (HTTP) Server and what you do to start and customize the HTTP Server on a Bay Networks® router.

You can use the Bay Command Console (BCC™) or Site Manager to configure the HTTP Server on a router. In this guide, you will find instructions for using both the BCC and Site Manager.

Before You Begin

Before using this guide, you must complete the following procedures. For a new router:

- Install the router (see the installation guide that came with your router).
- Connect the router to the network and create a pilot configuration file (see *Quick-Starting Routers*, *Configuring BayStack Remote Access*, or *Connecting ASN Routers to a Network*).

Make sure that you are running the latest version of Bay Networks BayRS™ and Site Manager software. For information about upgrading BayRS and Site Manager, see the upgrading guide for your version of BayRS.

Text Conventions

This guide uses the following text conventions:

angle brackets (< >) Indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command.
Example: If the command syntax is:

ping <ip_address>, you enter:
ping 192.32.10.12

bold text Indicates text that you need to enter and command names and options.
Example: Enter **show ip {alerts | routes}**

Example: Use the **dinfo** command.

braces ({ }) Indicate required elements in syntax descriptions where there is more than one option. You must choose only one of the options. Do not type the braces when entering the command.
Example: If the command syntax is:

show ip {alerts | routes}, you must enter either:
show ip alerts or **show ip routes**.

brackets ([]) Indicate optional elements in syntax descriptions. Do not type the brackets when entering the command.
Example: If the command syntax is:

show ip interfaces [-alerts], you can enter either:
show ip interfaces or **show ip interfaces -alerts**.

<i>italic text</i>	Indicates file and directory names, new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore. Example: If the command syntax is: show at < <i>valid_route</i> > <i>valid_route</i> is one variable and you substitute one value for it.
screen text	Indicates system output, for example, prompts and system messages. Example: Set Bay Networks Trap Monitor Filters
separator (>)	Shows menu paths. Example: Protocols > IP identifies the IP option on the Protocols menu.
vertical line ()	Separates choices for command keywords and arguments. Enter only one of the choices. Do not type the vertical line when entering the command. Example: If the command syntax is: show ip {alerts routes} , you enter either: show ip alerts or show ip routes , but not both.

Acronyms

ARP	Address Resolution Protocol
BootP	Bootstrap Protocol
FDDI	Fiber Distributed Data Interface
FTP	File Transfer Protocol
GUI	graphical user interface
HSSI	High-Speed Serial Interface
HTTP	Hypertext Transfer Protocol
ICMP	Internet Control Message Protocol
IP	Internet Protocol

IPX	Internetwork Packet Exchange
ISO	International Organization for Standardization
LAN	local area network
MAC	media access control
MIB	management information base
MTU	maximum transmission unit
OSPF	Open Shortest Path First
PPP	Point-to-Point Protocol
PROM	programmable read-only memory
RIP	Routing Information Protocol
SAP	Service Advertising Protocol
SNMP	Simple Network Management Protocol
TCP	Transmission Control Protocol
TFTP	Trivial File Transfer Protocol
WAN	wide area network

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Chapter 1

Starting the HTTP Server

The Bay Networks[®] HTTP Server is an embedded Web-based device management tool accessible from any standard Web browser. The HTTP Server is included with the Bay Networks router operating system software. Using HTTP Server software, you can monitor network devices, viewing summary, fault, and statistical information on a device-by-device basis.

Before you can use the HTTP Server to monitor a router, you must ensure that your browser is at the correct version and that its settings are appropriate to support the HTTP Server software. You must also configure and enable the HTTP Server software on the router using the Quick-Start installation script *install.bat*, Site Manager, or the Bay Command Console (BCC[™]).

This chapter describes how you do each of these tasks.

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Browser Requirements	1-2
Starting the HTTP Server Using install.bat	1-2
Starting the HTTP Server Using the BCC or Site Manager	1-3

Browser Requirements

The HTTP Server software requires a Web browser that supports frames, such as Netscape 3.0 or higher and Microsoft® Internet Explorer® 3.0 or higher. You can use the default settings for these browsers. If you have changed these settings, you must ensure that Java is enabled.



Note: Internet Explorer allows you to store your browser password. For security reasons, it is wise *not* to store your password.

Starting the HTTP Server Using *install.bat*

A new router comes with a flash memory card containing the software image for the router, two configuration files (*config* and *ti.cfg*), and the Quick-Start script *install.bat*.

The Quick-Start installation script creates an initial IP network interface on the router, so that your router can communicate with the configuration workstation from which you will manage the router. The *install.bat* script prompts you to enter the network information that dynamically configures the initial IP interface.

As the following example shows, step 7 of the script asks whether you want to enable HTTP. Answer yes to this question. (The default is no.)

Step 7. Enable HTTP

Enable the HTTP (Web) Server

Do you want to enable the HTTP (Web) server? (y/n)[n]: **y**

HTTP server enabled.



Note: For complete instructions on running the *install.bat* script and verifying that the installation is successful, see *Quick-Starting Routers*.

When you enable the HTTP Server during the Quick-Start procedure, you can use the HTTP Server after completing the *install.bat* procedure. If necessary, you can modify the default HTTP Server settings (see Chapter 9, “Customizing HTTP Server Parameters”).

After you run the *install.bat* script, you can install Site Manager software, as described in *Quick-Starting Routers*.

Starting the HTTP Server Using the BCC or Site Manager

If you did not use the Quick-Start procedure to start the HTTP Server, you can start it using the BCC or Site Manager. Before you start the HTTP Server, verify that you configured IP on an interface.

You can start the HTTP Server using default values for all parameters. If you decide to change any of the default values, see Chapter 9, “Customizing HTTP Server Parameters.”

Using the BCC

Adding the HTTP Server to a router automatically loads TCP on all slots. To add the HTTP Server to a router, navigate to the box prompt and enter:

http

For example, the following command adds HTTP Server to a router:

```
box# http  
http#
```

Using Site Manager

You can configure HTTP Server software in any Configuration Manager mode. To start HTTP Server software, complete the following tasks:

Site Manager Procedure	
You do this	System responds
1. In the Configuration Manager window, choose Protocols .	The Protocols menu opens.
2. Choose Global Protocols .	The Global Protocols menu opens.
3. Choose TCP .	The TCP menu opens.
4. Choose Create TCP .	You return to the Configuration Manager window.
5. Choose Protocols .	The Protocols menu opens.
6. Choose Global Protocols .	The Global Protocols menu opens.
7. Choose HTTP .	The HTTP menu opens.
8. Choose Create HTTP .	You return to the Configuration Manager window.

When you complete this procedure, the HTTP Server software is configured on the router.

Chapter 2

HTTP Server Concepts

With HTTP Server software, you can access device information from anywhere in the network using any standard Web browser that conforms to HTTP and HTML specifications. The HTTP Server is part of the router operating system for all Bay Networks non-VME-based GAME routers. This chapter provides an overview of the HTTP Server.

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What the HTTP Server Does	2-1
Navigating the HTTP Server Interface	2-3

To obtain Web-accessible data, you must configure the embedded HTTP Server software on the router. [Chapter 1, “Starting the HTTP Server,”](#) summarizes the configuration procedure.

What the HTTP Server Does

The HTTP Server is a graphical user interface (GUI) that lets you view real-time device summaries, events, alerts, and statistics. The HTTP Server graphically displays information similar to (and a subset of) the text-only information available through the BCC **show**, **enable**, and **disable** commands. Through this point-and-click interface, you also have direct access to online documentation and Bay Networks Technical Support.

The information that you gather through the HTTP Server interface can help you monitor your network's performance on a device-by-device basis. You can see, for example, where congestion is occurring or where transmission or reception problems exist. For detailed information about interpreting this information, refer to *Troubleshooting Routers* and *Event Messages for Routers*.

[Figure 2-1](#) is an example of the HTTP Server interface viewed with the Netscape Navigator 3.01 browser.



Note: The examples in this book were generated using Netscape Navigator 3.01, but you can use any standards-compliant Web browser with the HTTP Server. You must use a browser that supports the use of frames.

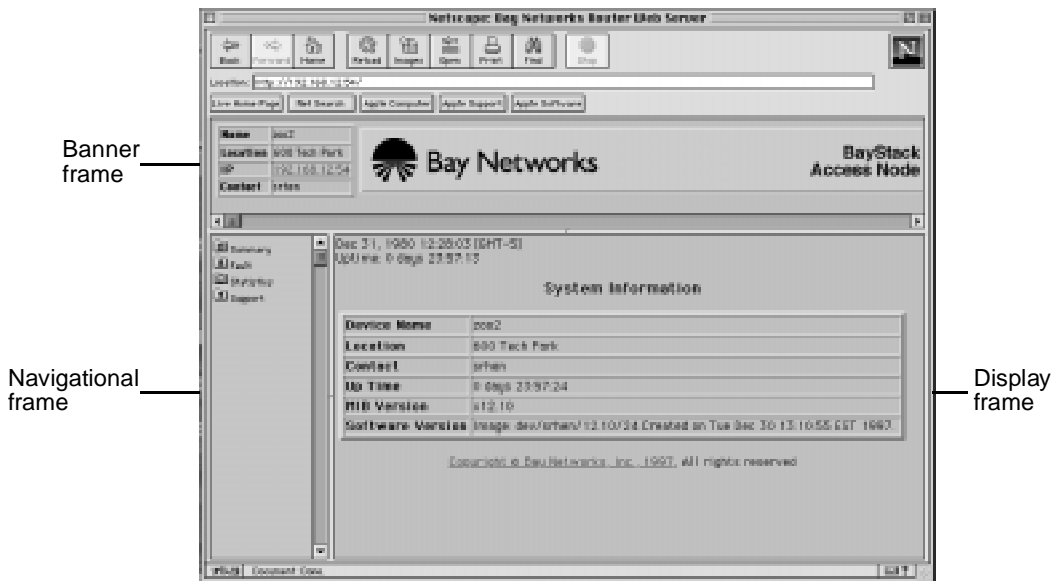


Figure 2-1. Initial HTTP Server Window

This is the first window you see when you specify a device or when you click on the Summary folder icon, then on the Info icon in the navigational frame. The top frame is the *banner*; it shows the Bay Networks logo and the device type. The banner also identifies the device by name, specifies its physical location and IP address, and lists the name of the contact person responsible for that device. The IP address is a link that you can click on to establish a Telnet connection to the device.

The first three rows of the *display frame* (System Information) repeat the device name, location, and contact information. This frame also provides the following information:

- Up Time -- time elapsed since the last device reset
- MIB Version -- version number of the management information base (MIB) for the router software
- Software Version -- version number and creation date and time of the router software image

The *navigational frame* contains links to each monitored function. Initially, these links are all folders.

Navigating the HTTP Server Interface

The folders (and the documents they contain) in the navigational frame are active links to device information. [Figure 2-2](#) shows the initial contents of this navigational frame.

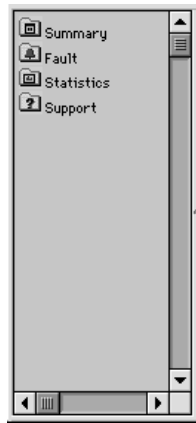


Figure 2-2. Navigational Frame

This frame contains expandable folders. Clicking on a folder shows its contents. Click on a document to view its information in the display frame. To close (that is, collapse) a folder's contents, click again on the folder icon.

Initially, the navigational frame contains the following folders:

- Summary -- System information, hardware status, PROM information, software image information, system resource information, and system task information
- Fault -- Circuit alerts and the event log
- Statistics -- Services, ports, and protocols
- Support -- Help, release notes, technical manuals, and customer support links

Click on each folder in turn to display the information for the device you are monitoring.

[Chapter 3, “HTTP Server Security,”](#) provides an overview of the security features available with the HTTP Server. Chapters 4 through 8 provide a catalog of the summary, fault, and statistical displays available when you click on the various folders in the navigational frame.

Chapter 3

HTTP Server Security

The HTTP Server allows access to device information from anywhere in the network. To protect your network information, you may want to implement security controls. The HTTP Server offers two levels of access control: user name/password security and network address filtering.

Topic	Page
User Name/Password Security	3-1
Network Address Filtering	3-2

User Name/Password Security

The HTTP Server controls access to network device information by grouping that information into collections that share the same security attributes, called *realms*. The HTTP Server defines two security realms on the router: User and Manager. These are the same as the logins for the Technician Interface. Similarly, a user name/password authorization mechanism controls access to each realm.

- User access privileges let you view information.
- Manager access privileges grant complete access to the router, letting you, for example, enable and disable an interface.

Before allowing any Manager-level operations, however, the HTTP Server requires that the system administrator set a nonnull Manager password. If the system administrator does not set a User password, the HTTP Server accepts an empty (null) string as the password. Generally, the system administrator sets passwords using Technician Interface commands, just as for console access through the Technician Interface.

If you have User access privileges and attempt to access information requiring Manager privileges (or, if you attempt to use the Manager login with a null password), the HTTP Server prompts you for the Manager password. If you do not provide the appropriate password, an error message appears, and you cannot perform that operation.

For specific information about how to set user names and passwords, see *Using Technician Interface Software*. For information about securing a router as part of the Quick-Start procedure, see *Quick-Starting Routers*.

Network Address Filtering

For additional security, you can implement IP access control filters when you configure IP on the router. These filters further restrict access to the router, limiting access to specific IP addresses or IP address ranges.

You must also ensure that IP is appropriately configured to support HTTP. To do this, you must ensure that:

- The configuration for the IP service also has HTTP configured.
- The appropriate access policy filters are configured for HTTP.

You specify these requirements as part of the IP configuration process, using the BCC. For additional information about IP access control filters and how to configure them, see *Configuring IP Utilities*. For general instructions about using the BCC, see *Using the Bay Command Console (BCC)*.

Chapter 4

Using the HTTP Server

This chapter describes how to use the HTTP Server to monitor the operation of your network. If you have not configured and enabled the HTTP Server on your router, see [Chapter 1, “Starting the HTTP Server.”](#) For specific descriptions of how to use the information from the HTTP Server to troubleshoot the devices in your network, refer to *Troubleshooting Routers*.

Topic	Page
Getting Help	4-1
Specifying a Device	4-2
Viewing Overall System Status	4-3

Getting Help

Click on the Support folder icon in the navigational frame, then on Help for help on the HTTP Server. Alternatively, you can click on the text Support next to the folder icon.

Other icons under the Support folder link to the Release Notes, the full Bay Networks router documentation set online, and the Bay Networks Technical Solutions Center.

After opening one of these links, choose File > Close to return to the HTTP Server page on the Web browser. Clicking on File > Exit shuts down the browser. The Back button may not be available on linked pages.



Note: In the figures that follow, the background color is white for legibility. Unless you changed your browser preferences to override the standard settings, the background color on your windows will be gray.

Specifying a Device

To monitor the status of a device on your network, first start your Web browser. In the Location field, enter:

http://<router IP address>

<router IP address> is an IP address on the device that you want to monitor, for example:

http://192.168.12.54

The browser displays a summary window, similar to that in [Figure 4-1](#).

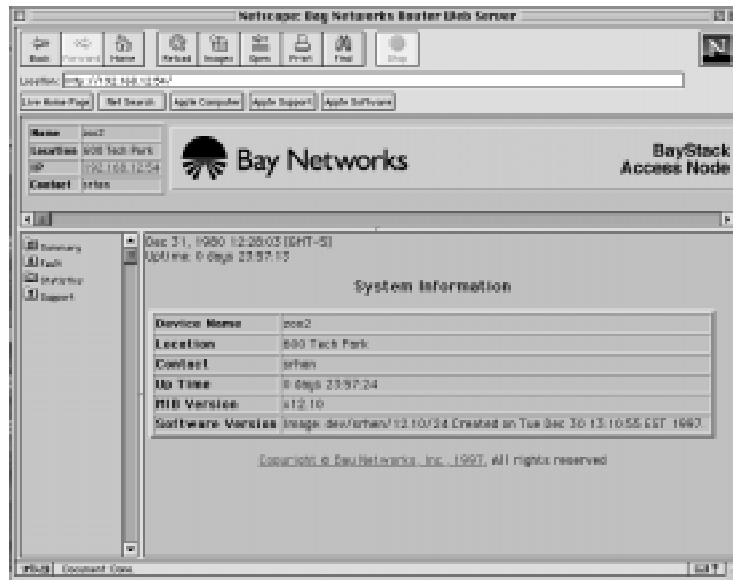


Figure 4-1. Initial HTTP Server Window

Viewing Overall System Status

Use the summary information to get an overall picture of the operational state of the router. To see the types of summary information available, click on the Summary folder icon in the navigational frame. The summary provides hardware and software information that can help in troubleshooting problems and knowing exactly how this router is configured, what its internal resource usage is, and similar information.

Click on the other links in the navigational frame for detailed event reports and other device statistics. The following sections describe the summary displays.

[Figure 4-2](#) is the first display you see when you specify a device, when you click on the text Summary, or when you click on the Summary folder icon, then on the Info icon.

Jan 27, 1998 14:14:58 [GMT-9] Uptime: 0 days 02:04:10	
System Information	
Device Name	BCN
Location	600TP 3N, STE 1ab
Contact	Meg Curry x63713 (or in 1ab x64721)
Up Time	0 days 02:04:10
MIB Version	x12.10
Software Version	Image: int/12.10/30 Created on Fri Jan 23 05:34:46 EST 1998.
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Figure 4-2. System Information Summary

The System Information in the display frame provides the following information:

- Device name -- the mnemonic name that the system administrator assigns
- Location -- the location, as defined by the system administrator
- Contact person responsible for that device, as defined by the system administrator
- Up time -- the time elapsed since the last device reset
- MIB version -- the version number of the management information base (MIB) for the router software
- Software version -- the version number and creation date and time of the router software image

For detailed information about interpreting the information obtained through this interface, refer to *Troubleshooting Routers*.

Viewing Hardware Summary Information

Click on Summary > Hardware in the navigational frame to view the summary information for the specified hardware device. [Figure 4-3](#) shows a sample hardware summary display.

Jan 27, 1998 14:18:25 [GMT-9]
Uptime : 0 days 02:07:35

Hardware						
Model		freen				
Serial Number		00006231				

Processor				Link Module		
Slot	Type	Revision	Serial Number	Type	Revision	Serial Number
1	fre2	00000013	00088275	dsde1	0000000f	000021e9
2	fre2	00000013	00087830	dtok	0000000e	00004201
3	o60	00000004	00000783	wffddi2m	00000017	00002b37
4	fre2	00000013	00088553	0		
5	o60	00000004	00001374	shss1	0000000b	0000268a
7	0			srm1	00000015	00021661
12	o60	00000004	00001282	osync	00000001	000004e3
13	o60	00000004	00001073	qenf	00000013	00030ed6

End of table

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Figure 4-3. Hardware Information Summary

The hardware summary lists the model name and serial number of the device, as well as the type, revision, and serial number of the processor and link module in each slot.

Viewing PROM Summary Information

Click on Summary > PROMs in the navigational frame to view the summary information for the PROM modules in the device. [Figure 4-4](#) shows a sample PROM summary display.

Jan 27, 1998 14:20:32 [GMT-9]
Uptime: 0 days 02:09:44

PROM Information				
Slot	Boot PROM		Diag PROM	
	Revision	Date and Time	Revision	Date and Time
1	0008000a	02/16/95 13:08:35	0004000e	05/08/97 10:55:00
2	0008000a	02/16/95 13:08:35	00040000	02/03/95 15:25:22
3	0008000a	02/16/95 13:08:35	0004000a	10/12/95 14:21:40
4	0008000a	02/16/95 13:08:35	00040000	02/03/95 15:25:22
5	0008000a	02/16/95 13:08:35	0004000e	05/08/97 10:55:00
7	00000000		00000000	
12	0008000a	02/16/95 13:08:35	0004000e	05/08/97 10:55:00
13	0008000a	02/16/95 13:08:35	0004000e	05/08/97 10:55:00

End of table

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Figure 4-4. PROM Information Summary

For each router slot, the PROM summary lists the revision number and the date and time of installation for the Boot PROM and for the Diagnostic PROM in that slot.

Viewing Software Image Summary Information

Click on Summary > Software in the navigational frame to view the summary information for the software image on the specified device. [Figure 4-5](#) shows a sample software image summary display.

Jan 27, 1998 14:22:11 [GMT-9]
Uptime: 0 days 02:11:23

Software Image Information				
Slot	Image File	Image Source	Image Date and Time	Configuration File
1	12.bn.exe	int/12.10/30	Fri Jan 23 05:34:46 EST 1998	1:lotsplus.cfg
2	12.bn.exe	int/12.10/30	Fri Jan 23 05:34:46 EST 1998	1:lotsplus.cfg
3	12.bn.exe	int/12.10/30	Fri Jan 23 05:34:46 EST 1998	1:lotsplus.cfg
4	12.bn.exe	int/12.10/30	Fri Jan 23 05:34:46 EST 1998	1:lotsplus.cfg
5	12.bn.exe	int/12.10/30	Fri Jan 23 05:34:46 EST 1998	1:lotsplus.cfg
7				
12	12.bn.exe	int/12.10/30	Fri Jan 23 05:34:46 EST 1998	1:lotsplus.cfg
13	12.bn.exe	int/12.10/30	Fri Jan 23 05:34:46 EST 1998	1:lotsplus.cfg

End of table

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Figure 4-5. Software Image Information Summary

For each router slot, the software image display lists the name of the image file, the source of that image, the date and time the image was created, and the name of the configuration file.



Note: Troubleshooting tip: Each slot should identify exactly the same image and *config* file. The existence of differences indicates a possible problem that needs attention.

Viewing System Resource Summary Information

Click on Summary > Resources in the navigational frame to view the summary information for the system resources on the specified hardware device. [Figure 4-6](#) shows a sample system resources summary display.

Jan 27, 1998 14:23:09 [GMT-9]
Uptime: 0 days 02:12:21

System Resources						
Slot	CPU		Memory		Buffers	
	Idle	Max	Free	Total	Free	Total
1	10407217	10456255	6567984	10256848	548	761
2	10398179	10456242	6338000	10256848	543	761
3	10416574	10456222	19190464	22839760	1127	1527
4	6474309	6518900	19096800	22839760	1274	1527
5	10407449	10456281	19238512	22839760	1134	1527
12	793260	795647	19149712	22839760	1121	1527
13	10373121	10456335	16706992	22839760	1058	1527

End of table

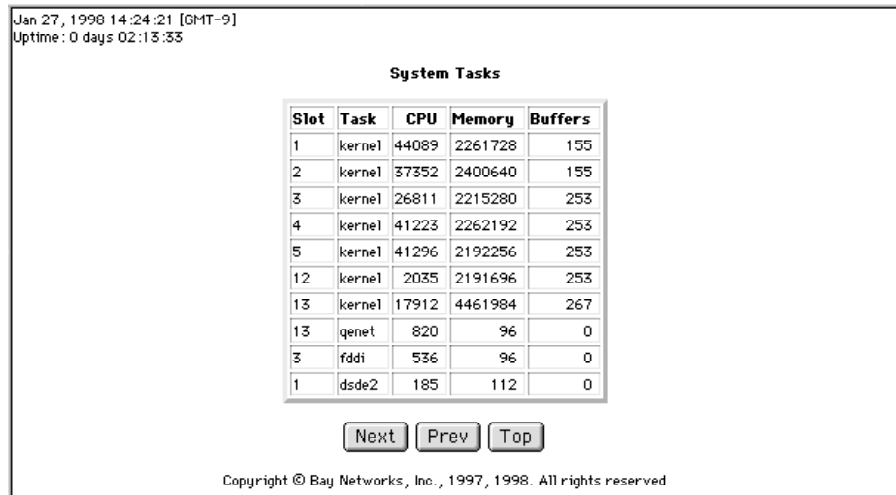
Copyright © Bay Networks, Inc., 1997, 1998. All rights reserved

Figure 4-6. System Resource Summary

For each router slot, the system resources display lists the usage data for the CPU, memory, and buffers in that slot.

Viewing System Task Summary Information

Click on Summary > Tasks in the navigational frame to view the summary information for the system tasks on the specified hardware device. [Figure 4-7](#) shows a sample system tasks summary display.



Jan 27, 1998 14:24:21 [GMT-9]
Uptime: 0 days 02:13:33

System Tasks

Slot	Task	CPU	Memory	Buffers
1	kernel	44089	2261728	155
2	kernel	37352	2400640	155
3	kernel	26811	2215280	253
4	kernel	41223	2262192	253
5	kernel	41296	2192256	253
12	kernel	2035	2191696	253
13	kernel	17912	4461984	267
13	qenet	820	96	0
3	fddi	536	96	0
1	dsde2	185	112	0

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Figure 4-7. System Task Summary

The system tasks summary shows the name of each active task, providing the usage data for the CPU, memory, and buffers, and indicating on which slots the task is running.

Chapter 5

Viewing Circuit Alerts and Events

This chapter describes how to use the HTTP Server to monitor circuit alerts and system events on a specified device. It assumes you have configured and enabled the HTTP Server on your router, as described in [Chapter 1, “Starting the HTTP Server.”](#) For a detailed description of how to isolate and correct problems with a specific device, refer to *Troubleshooting Routers*.

Topic	Page
Displaying Circuit Alerts	5-2
Viewing the Event Log	5-2

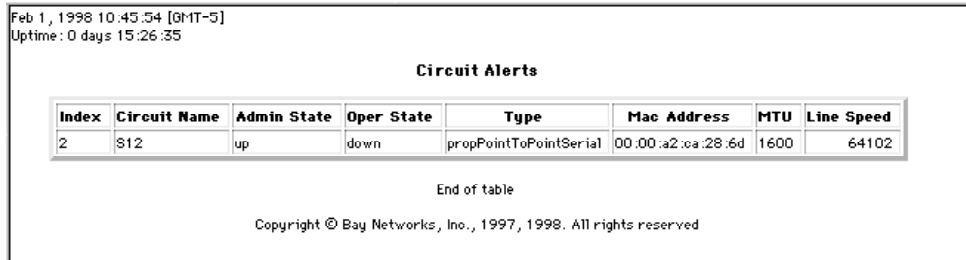
With the HTTP Server, you can view the events and alerts generated by the entities on the router. Clicking on Fault reveals two additional choices. You can view:

- All circuit alerts on the router
- All event log messages

The following sections describe these options.

Displaying Circuit Alerts

A circuit alert indicates a condition, such as a port/interface that has been brought down unexpectedly, that requires your immediate attention. To view any exceptional status conditions for any interface on the router, click on Fault > Circuit Alert in the navigational frame. [Figure 5-1](#) shows a sample circuit alerts display.



The screenshot shows a web interface for 'Circuit Alerts'. At the top left, it displays the date and time 'Feb 1, 1998 10:45:54 [GMT-5]' and the uptime 'Uptime: 0 days 15:26:35'. The title 'Circuit Alerts' is centered. Below it is a table with 8 columns: Index, Circuit Name, Admin State, Oper State, Type, Mac Address, MTU, and Line Speed. There is one row with the following data: Index 2, Circuit Name S12, Admin State up, Oper State down, Type propPointToPointSerial, Mac Address 00:00:a2:ca:28:6d, MTU 1600, and Line Speed 64102. Below the table, it says 'End of table' and at the bottom, 'Copyright © Bay Networks, Inc., 1997, 1998. All rights reserved'.

Index	Circuit Name	Admin State	Oper State	Type	Mac Address	MTU	Line Speed
2	S12	up	down	propPointToPointSerial	00:00:a2:ca:28:6d	1600	64102

Figure 5-1. Circuit Alert Display

For each index item, the circuit alerts display shows the circuit name, the administrative state, operational state, type, MAC address, maximum transmission unit (MTU), and line speed.

Viewing the Event Log

An event is something that happens to the operating status of a router. The router stores the event as a single entry in a memory-resident log. The event log for a router is the composite of all the events that occur for all the processors in the router.

An event message provides a brief description of an event, along with the event code associated with that event. Use the event code to look up the meaning of the message and what you must do about it in *Event Messages for Routers*. To view the events for a router, click on Fault > Events in the navigational frame.

[Figure 5-2](#) shows a sample event log display.

Feb 3, 1998 14:18:40 [GMT-9]
Uptime: 1 day 00:52:37

Event Log

☒ Fault
☒ Warning
☒ Info
☐ Trace
☐ Debug

Slot

Entities

After date time

```

# 1: 02/03/98 14:18:39.437 INFO  SLOT 1 SYNC      Code: 18
Connector COM1 LLC1 service withdrawn.

# 2: 02/03/98 14:18:39.449 INFO  SLOT 1 SYNC      Code: 14
Connector COM11 enabled.

# 3: 02/03/98 14:18:40.124 INFO  SLOT 12 TCP       Code: 6
TCP Opened: 192.168.133.114,80 - 192.32.241.45,1587 TCB: 0x31528370

```

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Figure 5-2. Event Log Display

Specifying the Contents of the Event Log Display

By default, the event log display shows Fault, Warning, and Info event messages. To show other event messages, click on the check boxes to select the appropriate message levels. You can also fill in the fields in this frame to restrict the display to one or more specific slots or entities, separating individual entries with spaces, and to show only events that happen after a specific date and time.



Note: All entity names are case-sensitive. For a list of entity names, refer to *Event Messages for Routers*.

Interpreting Event Messages

Event Messages for Routers provides detailed information about interpreting event messages and taking appropriate action. Most messages document routine occurrences that do not require you to do anything. [Table 5-1](#) lists the severity levels and provides brief descriptions of them.

Table 5-1. Event Message Severity Levels

Severity	Description
Fault	Indicates a major service disruption. A configuration, network, or hardware problem usually causes such a disruption. The entities involved keep restarting until the problem is resolved either by the router itself or by you.
Warning	Indicates that a service acted in an unexpected manner.
Info	Indicates routine events. Usually, no action is required.
Trace	Provides a detailed history of everything that happens on the router. Because of the amount of information that the Trace function records, Bay Networks recommends viewing this type of message only when diagnosing specific network problems.
Debug	Indicates information that Bay Networks Customer Support uses. With few exceptions, these messages do not appear in <i>Event Messages for Routers</i> .

Chapter 6

Viewing Router Service Statistics

Examining the router's statistics along with the event log can give you a picture of how well your router is working. When you click on Statistics in the navigational frame, the folder opens to show three more folders: Services, Ports, and Protocols, each containing subordinate links. This chapter shows the Services statistics.

[Chapter 7](#) shows the Port statistics, and [Chapter 8](#) shows the Protocols statistics.

Topic	Page
Viewing TFTP Statistics	6-2
Viewing TCP Statistics	6-3
Viewing FTP Statistics	6-4
Viewing Telnet Statistics	6-4
Viewing BootP Statistics	6-5
Viewing SNMP Statistics	6-7
Viewing HTTP Statistics	6-10

Clicking on Statistics > Services displays links to the following services:

- TFTP
- TCP
- FTP
- Telnet
- BootP
- SNMP
- HTTP

To get statistical information about any of these services, click on the appropriate link in the navigational frame. The following sections show these displays.



Note: This manual presents the details of the HTTP statistics. Detailed descriptions of statistics for the other services are in the manuals for each service.

Viewing TFTP Statistics

Click on Statistics > Services > TFTP or on the text TFTP to see the statistical information for the Trivial File Transfer Protocol (TFTP). [Figure 6-1](#) shows an example of a TFTP statistics display.

The screenshot shows a web interface for TFTP statistics. At the top left, it displays the date and time 'Jan 27, 1998 16:00:59 [GMT-9]' and the uptime 'Uptime: 0 days 03:50:01'. The title 'TFTP' is centered. Below it is a table with two columns. The first column lists various statistics, and the second column shows their current values. At the bottom of the screenshot, there is a copyright notice: 'Copyright © Bay Networks, Inc., 1997, 1998. All rights reserved'.

TFTP	
State	enabled
Default Volume	volume1
Retransmit Timeout (Secs.)	5
Max Number of Retransmits	5
Writes Received	0
Reads Received	0
Retransmits	0

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Figure 6-1. TFTP Statistics

Viewing TCP Statistics

Click on Statistics > Services > TCP to view statistical information for the Transmission Control Protocol (TCP). [Figure 6-2](#) shows an example of a TCP statistics display.

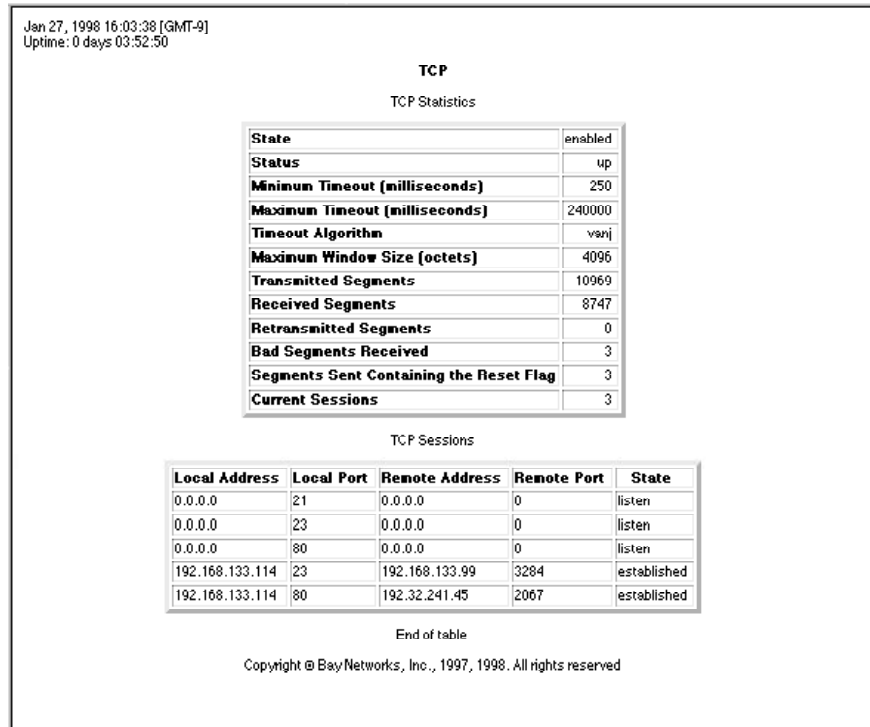
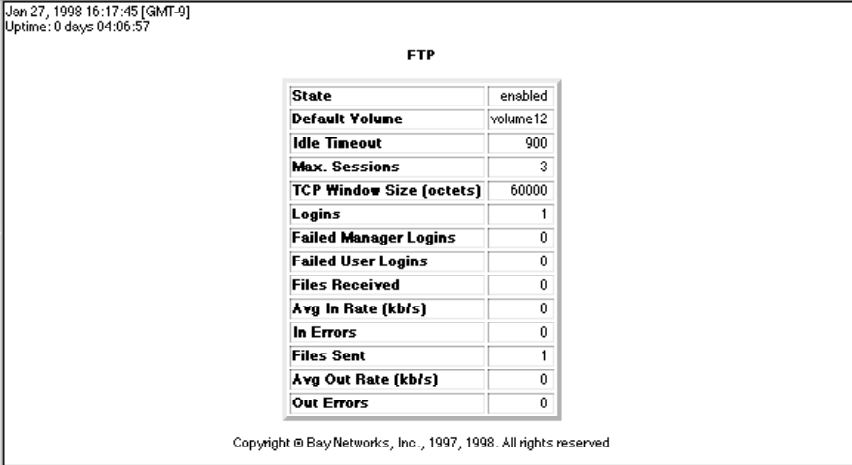


Figure 6-2. TCP Statistics

Viewing FTP Statistics

Click on Statistics > Services > FTP to view statistical information for the File Transfer Protocol (FTP). [Figure 6-3](#) shows an example of an FTP statistics display.



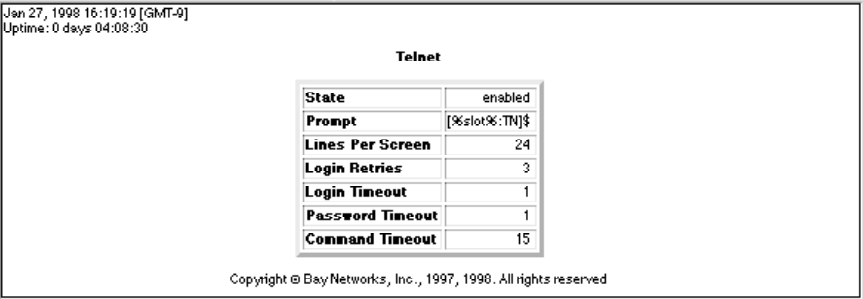
State	enabled
Default Volume	volume12
Idle Timeout	900
Max. Sessions	3
TCP Window Size (octets)	60000
Logins	1
Failed Manager Logins	0
Failed User Logins	0
Files Received	0
Avg In Rate (kb/s)	0
In Errors	0
Files Sent	1
Avg Out Rate (kb/s)	0
Out Errors	0

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Figure 6-3. FTP Statistics

Viewing Telnet Statistics

Click on Statistics > Services > Telnet to view the statistics for Telnet services. [Figure 6-4](#) shows an example of a Telnet statistics display.



State	enabled
Prompt	[%slot%:TN]\$
Lines Per Screen	24
Login Retries	3
Login Timeout	1
Password Timeout	1
Command Timeout	15

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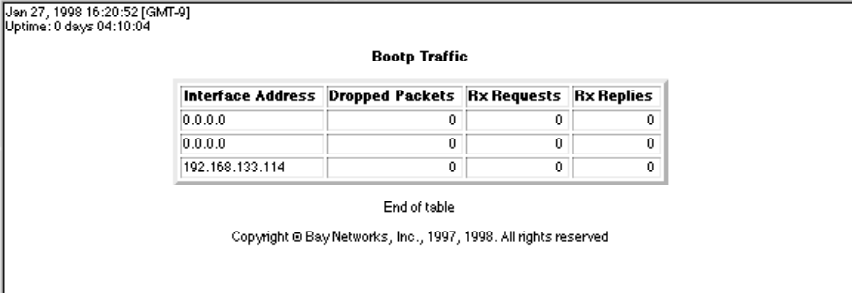
Figure 6-4. Telnet Statistics

Viewing BootP Statistics

Clicking on Statistics > Services > Bootp reveals several subordinate links: Traffic, Interfaces, Clients, Preferred Srv (Servers), and Relay Agents. The following sections show examples of these displays.

Viewing BootP Traffic Statistics

Click on Statistics > Services > Bootp > Traffic or on the text Bootp to view statistical information for BootP traffic. [Figure 6-5](#) shows an example of a BootP traffic statistics display.



Jan 27, 1998 16:20:52 [GMT-9]
Uptime: 0 days 04:10:04

Bootp Traffic

Interface Address	Dropped Packets	Rx Requests	Rx Replies
0.0.0.0	0	0	0
0.0.0.0	0	0	0
192.168.133.114	0	0	0

End of table

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Figure 6-5. BootP Traffic Statistics

Viewing BootP Interface Statistics

Click on Statistics > Services > Bootp > Interfaces to view statistical information for BootP relay agent interfaces. [Figure 6-6](#) shows an example of a BootP relay agent interface statistics display.

Jan 27, 1998 16:21:38 [GMT-9]
Uptime: 0 days 04:10:50

Bootp Relay Agent Interfaces

Interface Address	State	Min Seconds	Max Hops	Pass Through Mode
0.0.0.0	notpres	0	4	bootp
0.0.0.0	notpres	0	4	bootp
192.168.133.114	up	0	4	bootp

End of table

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Figure 6-6. BootP Relay Agent Interface Statistics

Viewing BootP Client Statistics

Click on Statistics > Services > Bootp > Clients to view statistical information for BootP clients. [Figure 6-7](#) shows an example of a BootP client statistics display.

Jan 27, 1998 16:22:33 [GMT-9]
Uptime: 0 days 04:11:45

Bootp Clients

Client DLCI	Client IP Address
16	21.21.21.1

End of table

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Figure 6-7. BootP Client Statistics

Viewing BootP Preferred Server Statistics

Click on Statistics > Services > Bootp > Preferred Srv to view statistical information for BootP preferred servers. [Figure 6-8](#) shows an example of a BootP preferred servers statistics display.

Jan 27, 1998 16:23:18 [GMT-9]
Uptime: 0 days 04:12:31

Bootp Preferred Servers

Agent Address	Preferred Server Address	State	Request Mode
0.0.0.0	0.0.0.0	enabled	bootp
192.168.133.114	192.168.133.99	enabled	bootp

End of table

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Figure 6-8. BootP Preferred Server Statistics

Viewing BootP Relay Agent Statistics

Click on Statistics > Services > Bootp > Relay Agents to view statistical information for BootP relay agents. [Figure 6-9](#) shows an example of a BootP relay agents statistics display.

Jan 27, 1998 16:24:16 [GMT-9]
Uptime: 0 days 04:13:28

Bootp Relay Agents

Agent Address	Outbound Address	State	Pass Through Mode
0.0.0.0	0.0.0.0	enabled	bootp
0.0.0.0	0.0.0.0	enabled	bootp
192.168.133.114	192.168.133.114	enabled	bootp

End of table

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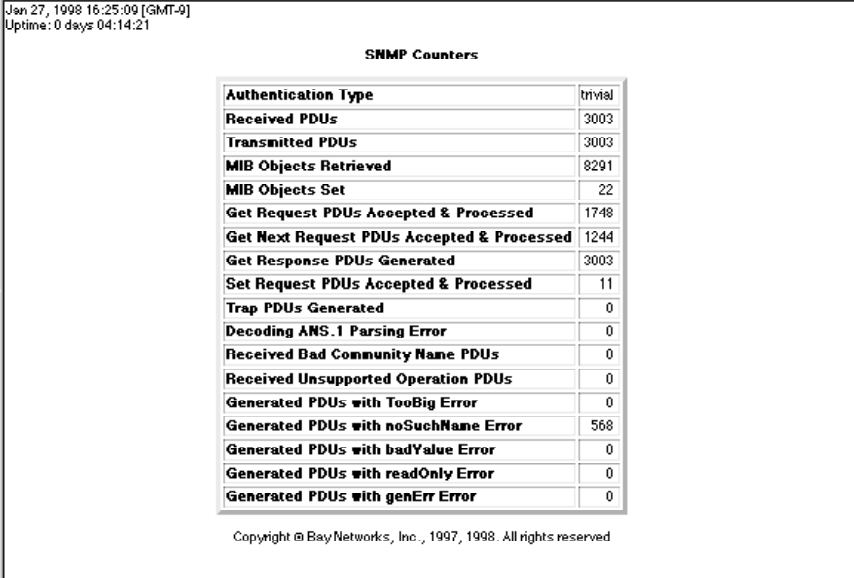
Figure 6-9. BootP Relay Agent Statistics

Viewing SNMP Statistics

Clicking on Statistics > Services > SNMP in the navigational frame reveals the following subordinate links: Counters, Communities, Entity Traps, and Exceptions. The following sections show examples of these displays.

Viewing SNMP Counter Statistics

Click on Statistics > Services > SNMP > Counters or on the text SNMP to view statistical information for SNMP counters. [Figure 6-10](#) shows an example of the SNMP counters statistics display.



SNMP Counters	
Authentication Type	trivial
Received PDUs	3003
Transmitted PDUs	3003
MIB Objects Retrieved	8291
MIB Objects Set	22
Get Request PDUs Accepted & Processed	1748
Get Next Request PDUs Accepted & Processed	1244
Get Response PDUs Generated	3003
Set Request PDUs Accepted & Processed	11
Trap PDUs Generated	0
Decoding ANSI.1 Parsing Error	0
Received Bad Community Name PDUs	0
Received Unsupported Operation PDUs	0
Generated PDUs with TooBig Error	0
Generated PDUs with noSuchName Error	568
Generated PDUs with badValue Error	0
Generated PDUs with readOnly Error	0
Generated PDUs with genErr Error	0

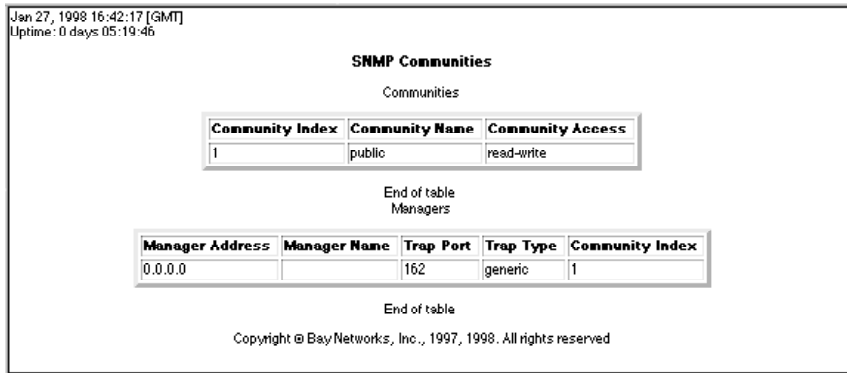
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Figure 6-10. SNMP Counter Statistics

Viewing SNMP Community Statistics

You must have Manager-level access privileges to view the statistics for SNMP communities. If you logged in with user-level privileges, HTTP prompts you to enter the manager login name and password.

Click on Statistics > Services > SNMP > Communities to view statistical information for SNMP communities. [Figure 6-11](#) shows an example of an SNMP communities statistics display.



The screenshot shows the 'SNMP Communities' page. At the top left, it displays the date and time 'Jan 27, 1998 16:42:17 [GMT]' and the uptime 'Uptime: 0 days 05:19:46'. The main title is 'SNMP Communities'. Below it, the word 'Communities' is centered. A table with three columns: 'Community Index', 'Community Name', and 'Community Access' is shown. The first row contains the values '1', 'public', and 'read-write'. Below the table, the text 'End of table' is centered. Further down, the word 'Managers' is centered. Another table with five columns: 'Manager Address', 'Manager Name', 'Trap Port', 'Trap Type', and 'Community Index' is shown. The first row contains the values '0.0.0.0', an empty field, '162', 'generic', and '1'. Below this table, the text 'End of table' is centered. At the bottom, the copyright notice 'Copyright © BayNetworks, Inc., 1997, 1998. All rights reserved' is displayed.

Community Index	Community Name	Community Access
1	public	read-write

End of table

Managers

Manager Address	Manager Name	Trap Port	Trap Type	Community Index
0.0.0.0		162	generic	1

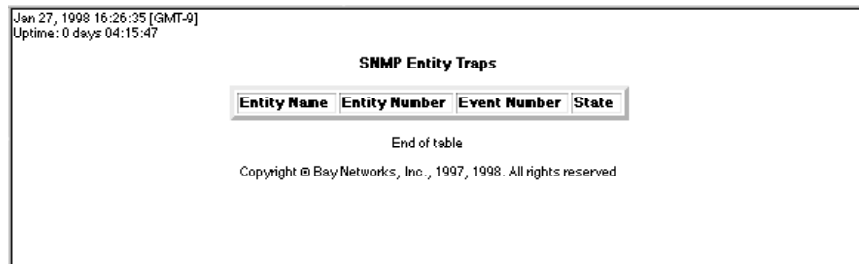
End of table

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Figure 6-11. SNMP Community Statistics

Viewing SNMP Entity Trap Statistics

Click on Statistics > Services > SNMP > Entity Traps to view SNMP entity traps. [Figure 6-12](#) shows an example of an SNMP entity trap statistics display with no data.



The screenshot shows the 'SNMP Entity Traps' page. At the top left, it displays the date and time 'Jan 27, 1998 16:26:35 [GMT-9]' and the uptime 'Uptime: 0 days 04:15:47'. The main title is 'SNMP Entity Traps'. Below it, a table with four columns: 'Entity Name', 'Entity Number', 'Event Number', and 'State' is shown. The table is empty. Below the table, the text 'End of table' is centered. At the bottom, the copyright notice 'Copyright © BayNetworks, Inc., 1997, 1998. All rights reserved' is displayed.

Entity Name	Entity Number	Event Number	State
-------------	---------------	--------------	-------

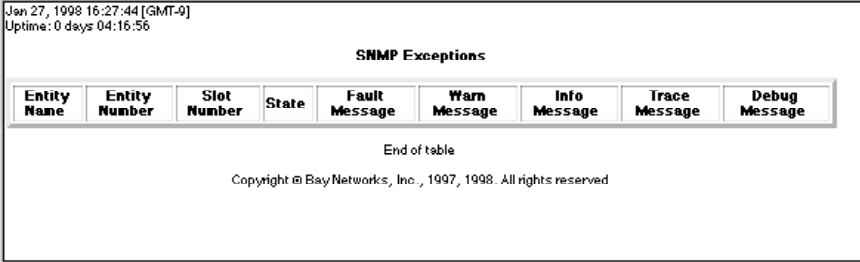
End of table

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Figure 6-12. SNMP Entity Trap Statistics

Viewing SNMP Exception Statistics

Click on Statistics > Services > SNMP > Exceptions to view SNMP exceptions statistics. [Figure 6-13](#) shows an example of an SNMP exceptions statistics display with no data.



Entity Name	Entity Number	Slot Number	State	Fault Message	Warn Message	Info Message	Trace Message	Debug Message
End of table								

Figure 6-13. SNMP Exception Statistics

Viewing HTTP Statistics

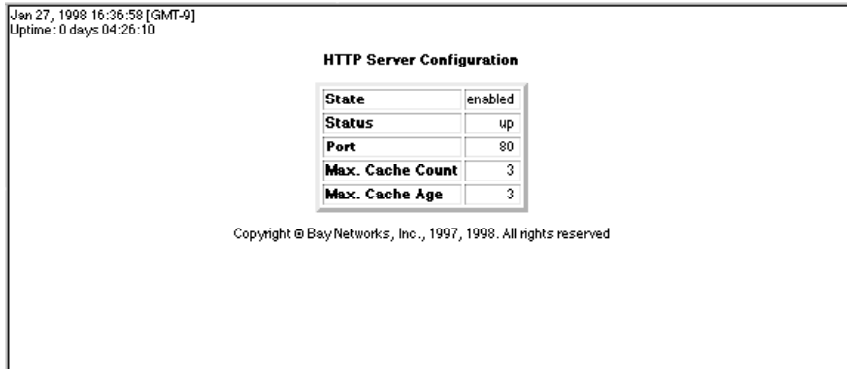
Clicking on Statistics > Services > HTTP in the navigational frame reveals the following subordinate links: Configuration, Counters, Requests, and Responses. The following sections show examples of these displays. The explanations that follow the screens are longer than for other services, because these statistics are not currently described elsewhere.



Note: HTTP Server statistics are also accessible through the Site Manager Statistics Manager. [Appendix B, “Viewing HTTP Server Statistics Using the Statistics Manager,”](#) shows and briefly describes the Statistics Manager displays for the HTTP Server.

Viewing HTTP Server Configuration Statistics

Click on Statistics > Services > HTTP > Configuration to view HTTP Server configuration statistics. [Figure 6-14](#) shows an example of an HTTP Server configuration statistics display.



HTTP Server Configuration	
State	enabled
Status	up
Port	80
Max. Cache Count	3
Max. Cache Age	3

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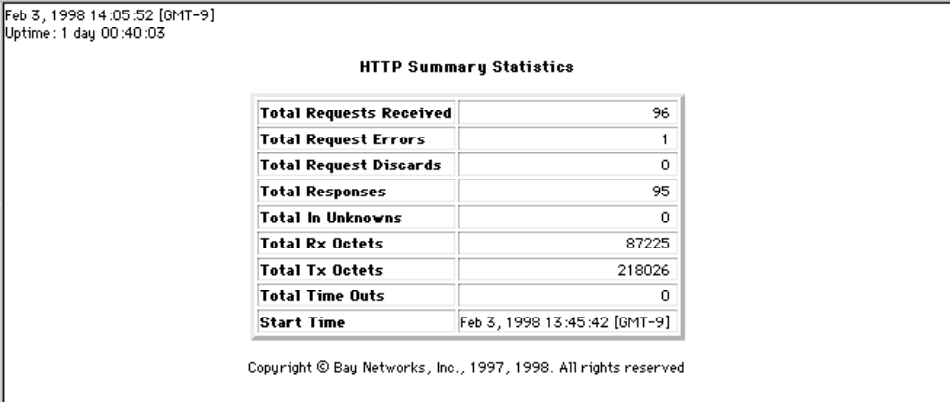
Figure 6-14. HTTP Server Configuration Statistics

The following is a brief description of these statistics, taken from the HTTP MIB.

- State -- Whether the server is enabled or disabled.
- Status -- Whether the server is currently up, down, initializing, or not present.
- Port -- The port number on which this server listens to requests.
- Max. Cache Count -- The maximum number of archives that will be cached in system RAM. Increasing this value can improve performance for multiple simultaneous requests at the cost of greater memory usage.
- Max. Cache Age -- The maximum number of seconds that an archive is cached in system RAM.

Viewing HTTP Counter Summary Statistics

Click on Statistics > Services > HTTP > Counters or on the text HTTP to view summary statistical information for HTTP. [Figure 6-15](#) shows an example of an HTTP counters statistical display.



Total Requests Received	96
Total Request Errors	1
Total Request Discards	0
Total Responses	95
Total In Unknowns	0
Total Rx Octets	87225
Total Tx Octets	218026
Total Time Outs	0
Start Time	Feb 3, 1998 13:45:42 [GMT-9]

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Figure 6-15. HTTP Summary Statistics

These statistics provide the following information:

- Total Requests Received -- The total number of requests that this entity received.
- Total Request Errors -- The total number of request errors that this entity detected (as server).
- Total Request Discards -- The total number of requests that this entity discarded (as server).
- Total Responses -- The total number of responses that this entity generated or received.
- Total In Unknowns -- The total number of unknown messages that this entity received.
- Total Rx Octets -- The total number of bytes that this entity received.
- Total Tx Octets -- The total number of bytes that this entity transmitted.
- Total Time Outs -- The total number of timeouts for this entity.
- Start Time -- The date and time that the HTTP services were enabled.

Viewing HTTP Request Statistics

Click on Statistics > Services > HTTP > Requests to view the HTTP request statistics. [Figure 6-16](#) shows an example of an HTTP request statistics display.

Jan 27, 1998 16:38:28 [GMT-9]
Uptime: 0 days:04:27:40

HTTP Request Statistics

Method	Total In	In Last Time
get	166	Jan 27, 1998 16:38:29 [GMT-9]
head	0	
post	1	Jan 27, 1998 12:29:59 [GMT-9]

End of table

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Figure 6-16. HTTP Request Statistics

These statistics provide the following information:

- Method -- The HTTP standard request method to which these statistics apply.
- Total In -- The number of requests of this type that this entity received.
- In Last Time -- The date and time the last request was received.

Viewing HTTP Response Statistics

Click on Statistics > Services > HTTP > Responses to view the HTTP response statistics. [Figure 6-17](#) shows an example of an HTTP response statistics display.

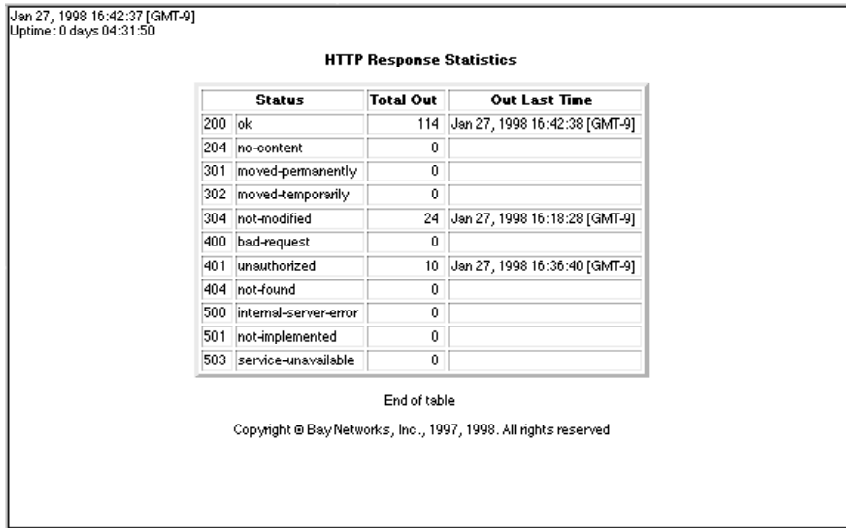


Figure 6-17. HTTP Response Statistics

The following is a brief description of these statistics, taken from the HTTP MIB.

- Status -- An HTTP standard code and message description indicating the status of the response.
- Total Out -- The number of times this response was generated.
- Out Last Time -- The date and time when the most recent response was sent.

Chapter 7

Viewing Router Port Statistics

Clicking on Statistics > Ports displays the following folders in the navigational frame:

- Ethernet
- Sync
- FDDI
- HSSI
- Token Ring

To get statistical information about any port type, click on the appropriate link. Each port-type folder contains links to summary statistics, traffic (number of packets transmitted and received) statistics, receive error statistics, and transmit error statistics. All but Ethernet also display system error statistics. The following sections show and briefly describe these displays.

Topic	Page
Changing the Administrative Status of a Port	7-2
Viewing Traffic Statistics for All Ports	7-2
Viewing Ethernet Port Statistics	7-3
Viewing Synchronous (Sync) Port Statistics	7-6
Viewing FDDI Port Statistics	7-9
Viewing HSSI Port Statistics	7-12
Viewing Token Ring Port Statistics	7-15

Changing the Administrative Status of a Port

A user who has Manager-level access privileges can click on the first column of the table in the summary statistics window for any port type to change the administrative setting of the port.



Caution: Disabling the interface through which your Web browser is communicating with a device causes a loss of connectivity with the device.

The Enabled column displays the administrative setting, but it is not a clickable link. The State column shows the operational state of the port (up or down). If the Enabled column shows that the port is enabled, but the State column shows that the port is down, there is a problem with the port.

Viewing Traffic Statistics for All Ports

To view traffic statistics for all ports, do one of the following:

- Click on the text Statistics.
- Click on the Statistics folder, then on the text Port.

[Figure 7-1](#) shows an example of a port traffic statistics display.

Feb 3, 1998 16:11:28 [GMT-9]
Uptime: 1 day 02:45:39

Port Traffic									
Description	Admin State	Oper State	Type	Received			Transmitted		
				Oetets	Errors	Discards	Oetets	Errors	Discards
E131	up	up	ethernet-csmaod	270543821	0	0	40147948	0	0
S12	up	down	propPointToPointSerial	0	0	0	78208	0	0
O21	up	up	iso88025-tokenRing	15553060	0	0	16607039	0	0
S11	up	up	ppp	0	0	0	613940	0	0
H51	up	testing	frame-relay	0	0	0	0	0	0
F31	up	up	fddi	0	0	0	12686374	0	0
E132	up	up	ethernet-csmaod	14056202	0	0	15798349	0	0
S128	up	up	frame-relay	0	0	0	0	0	0

End of table

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Figure 7-1. Port Traffic Statistics

Viewing Ethernet Port Statistics


Clicking on Statistics > Port > Ethernet in the navigational frame reveals the following subordinate links: Summary, Traffic, Rx Errors, and Tx Errors. The following sections show examples of these displays.

Viewing Ethernet Summary Statistics

Click on Statistics > Ports > Ethernet > Summary or on the word Ethernet to view Ethernet summary statistics. [Figure 7-2](#) shows an example of an Ethernet summary statistics display.

Jan 31, 1998 11:35:37 [GMT-9]
Uptime: 1 day 18:35:44

Ethernet Summary

 Disabling the interface through which your browser is communicating with the device causes a loss of connectivity with it.

	Slot	Conn	Circuit	Enabled	State	MAC Address	BOFL	BOFL TMO	MTU	HW Filter	Line Speed
Disable	13	1	E131	enable	up	00:00:a2:cb:6e:14	enable	5	1518	disable	tenbasex
Disable	13	2	E132	enable	up	00:00:a2:cb:6e:15	enable	5	1518	disable	tenbasex

End of table

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Figure 7-2. Ethernet Summary Statistics

Viewing Ethernet Traffic Statistics

Click on Statistics > Ports > Ethernet > Traffic to view Ethernet traffic statistics. [Figure 7-3](#) shows an example of an Ethernet traffic statistics display.

Jan 31, 1998 12:01:18 [GMT-9]
Uptime: 1 day 19:01:25

Ethernet Traffic

Slot	Conn	Circuit	State	Rx Octets	Rx Packets	Tx Octets	Tx Packets	Tx Deferred
13	1	E131	up	387638999	1390307	42976391	166822	109
13	2	E132	up	1521925	3291	5166710	77097	0

End of table

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Figure 7-3. Ethernet Traffic Statistics

Viewing Ethernet Receive Error Statistics

Click on Statistics > Ports > Ethernet > Rx Errors to view Ethernet receive error statistics. [Figure 7-4](#) shows an example of an Ethernet receive error statistics display.

Jan 31, 1998 12:03:58 [GMT-9]
Uptime: 1 day 19:04:05

Ethernet Receive Errors							
Slot	Conn	Circuit	State	Checksum Errors	Alignment Errors	Too Long	Overruns
13	1	E131	up	0	0	0	0
13	2	E132	up	0	0	0	0

End of table

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Figure 7-4. Ethernet Receive Error Statistics

Viewing Ethernet Transmit Error Statistics

Click on Statistics > Ports > Ethernet > Tx Errors to view Ethernet transmit error statistics. [Figure 7-5](#) shows an example of an Ethernet transmit error statistics display.

Jan 31, 1998 12:04:51 [GMT-9]
Uptime: 1 day 19:04:57

Ethernet Transmit Errors									
Slot	Conn	Circuit	State	Too Long	Underflow Errors	Internal MAC Errors	Deadlock Errors	Excessive Collisions	Late Collisions
13	1	E131	up	0	0	0	0	0	0
13	2	E132	up	0	0	0	0	0	0

End of table

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Figure 7-5. Ethernet Transmit Error Statistics

Viewing Synchronous (Sync) Port Statistics

Clicking on Statistics > Ports > Sync in the navigational frame reveals the following subordinate links: Summary, Traffic, Rx Errors, Tx Errors, and Sys Errors. The following sections show examples of these displays.

Viewing Synchronous Summary Statistics

Click on Statistics > Ports > Sync > Summary or on the word Summary to view synchronous summary statistics. [Figure 7-6](#) shows an example of a synchronous summary statistics display.

Jan 31, 1998 12:06:43 [GMT-9]
Uptime: 1 day 19:06:50


Sync Summary												
 Disabling the interface through which your browser is communicating with the device causes a loss of connectivity with it.												
	Slot	Conn	Circuit	Enabled	State	MAC Address	Line Number	MTU	VAN Protocol	Loc Adr	Rem Adr	Media Type
Disable	1	1	S11	enabled	up	00:00:a2:04:c9:d2	201101	1600	ppp	7	7	default
Enable	1	2	S12	disabled	init		201102	1600	standard	7	7	default
Disable	12	8	S128	enabled	up	00:00:a2:c3:3b:38	212108	1600	framerelay	7	7	default
End of table												

Figure 7-6. Synchronous Summary Statistics

Viewing Synchronous Traffic Statistics

Click on Statistics > Ports > Sync > Traffic to view synchronous traffic statistics. [Figure 7-7](#) shows an example of a synchronous traffic statistics display.

Jan 31, 1998 12:08:24 [GMT-9]
Uptime: 1 day 19:08:30

Sync Traffic

Slot	Conn	Circuit	State	Rx Octets	Rx Packets	Tx Octets	Tx Packets
1	1	S11	up	0	0	1485260	74263
1	2	S12	init	0	0	0	0
12	8	S128	up	0	0	0	0

End of table

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Figure 7-7. Synchronous Traffic Statistics

Viewing Synchronous Receive Error Statistics

Click on Statistics > Ports > Sync > Rx Errors to view synchronous receive error statistics. [Figure 7-8](#) shows an example of a synchronous receive error statistics display.

Jan 31, 1998 12:09:49 [GMT-9]
Uptime: 1 day 19:09:35

Sync Receive Errors

Slot	Conn	Circuit	State	Bad Packets	Runts	Rejects	Too Long	Overflows
1	1	S11	wait	0	0	0	0	0
1	2	S12	init	0	0	0	0	0
12	8	S128	up	0	0	0	0	0

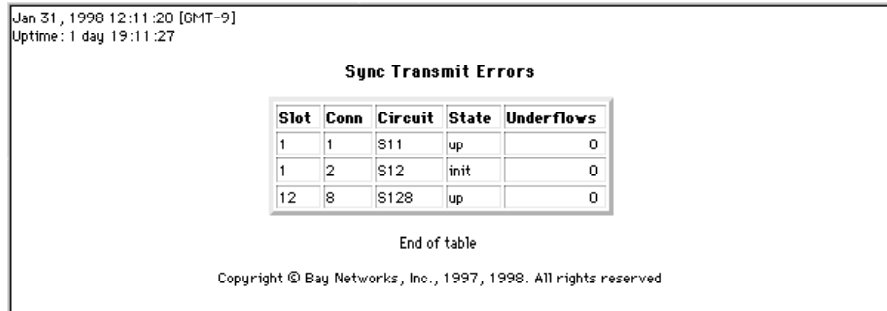
End of table

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Figure 7-8. Synchronous Receive Error Statistics

Viewing Synchronous Transmit Error Statistics

Click on Statistics > Ports > Sync > Tx Errors to view synchronous transmit error statistics. [Figure 7-9](#) shows an example of a synchronous transmit error statistics display.



Jan 31, 1998 12:11:20 [GMT-9]
Uptime: 1 day 19:11:27

Sync Transmit Errors

Slot	Conn	Circuit	State	Underflows
1	1	S11	up	0
1	2	S12	init	0
12	8	S128	up	0

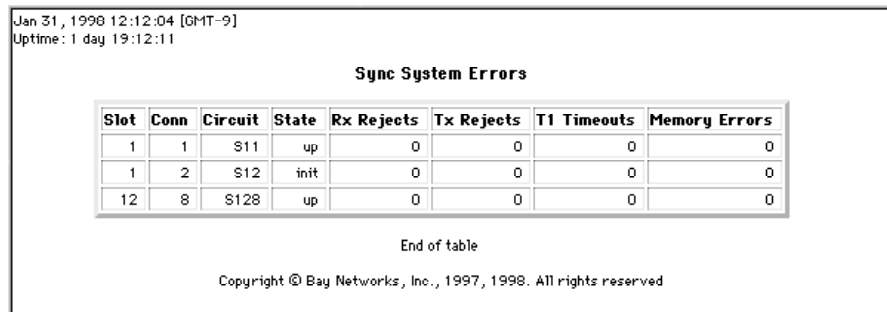
End of table

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Figure 7-9. Synchronous Transmit Error Statistics

Viewing Synchronous System Error Statistics

Click on Statistics > Ports > Sync > Sys Errors to view synchronous system error statistics. [Figure 7-10](#) shows an example of a synchronous system error statistics display.



Jan 31, 1998 12:12:04 [GMT-9]
Uptime: 1 day 19:12:11

Sync System Errors

Slot	Conn	Circuit	State	Rx Rejects	Tx Rejects	T1 Timeouts	Memory Errors
1	1	S11	up	0	0	0	0
1	2	S12	init	0	0	0	0
12	8	S128	up	0	0	0	0

End of table

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Figure 7-10. Synchronous System Error Statistics

Viewing FDDI Port Statistics

Clicking on Statistics > Ports > FDDI in the navigational frame reveals the following subordinate links: Summary, Traffic, Rx Errors, Tx Errors, and Sys Errors. The following sections show examples of these displays.

Viewing FDDI Summary Statistics

Click on Statistics > Ports > FDDI > Summary or on the text FDDI to view FDDI summary statistics. [Figure 7-11](#) shows an example of an FDDI summary statistics display.

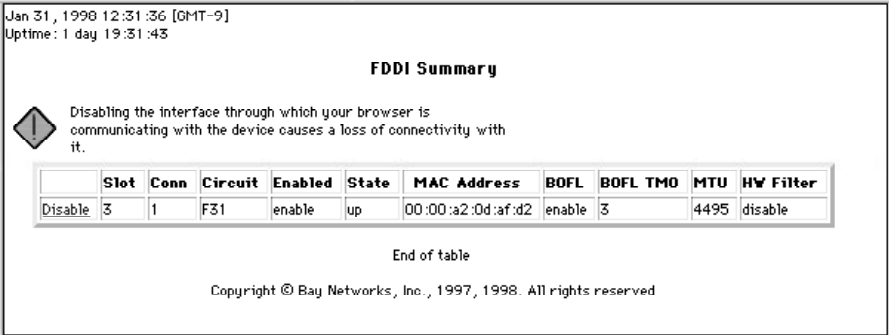


Figure 7-11. FDDI Summary Statistics

Viewing FDDI Traffic Statistics

Click on Statistics > Ports > FDDI > Traffic to view FDDI traffic statistics. [Figure 7-12](#) shows an example of an FDDI traffic statistics display.

Jan 31, 1998 12:33:05 [GMT-9]
Uptime: 1 day 19:33:12

FDDI Traffic

Slot	Conn	Circuit	State	Rx Octets	Rx Packets	Tx Octets	Tx Packets
3	1	F31	up	0	0	4396590	51245

End of table

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Figure 7-12. FDDI Traffic Statistics

Viewing FDDI Receive Error Statistics

Click on Statistics > Ports > FDDI > Rx Errors to view FDDI receive error statistics. [Figure 7-13](#) shows an example of an FDDI receive error statistics display.

Jan 31, 1998 12:34:03 [GMT-9]
Uptime: 1 day 19:34:09

FDDI Receive Errors

Slot	Conn	Circuit	State	CRC Errors	Overrun Errors	Invalid Packets	MAC Errors	Too Long
3	1	F31	up	0	0	0	0	0

End of table

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Figure 7-13. FDDI Receive Error Statistics

Viewing FDDI Transmit Error Statistics

Click on Statistics > Ports > FDDI > Tx Errors to view FDDI transmit errors. [Figure 7-14](#) shows an example of an FDDI transmit error statistics display.

Jan 31, 1998 12:34:48 [GMT-9]
Uptime: 1 day 19:34:55

FDDI Transmit Errors

Slot	Conn	Circuit	State	Aborted Packets	Underrun Errors
3	1	F31	up	3	0

End of table

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Figure 7-14. FDDI Transmit Error Statistics

Viewing FDDI System Error Statistics

Click on Statistics > Ports > FDDI > Sys Errors to view FDDI system error statistics. [Figure 7-15](#) shows an example of an FDDI system error statistics display.

Jan 31, 1998 12:46:03 [GMT-9]
Uptime: 1 day 19:46:10

FDDI System Errors

Slot	Conn	Circuit	State	Tx Parity Errors	Rx Parity Errors	Tx Ring Errors	Rx Ring Errors	SMT Ring Errors	Port Operation Errors	Internal Operation Errors	Host Errors
3	1	F31	up	0	0	0	0	0	0	0	0

End of table

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Figure 7-15. FDDI System Error Statistics


Viewing HSSI Port Statistics

Clicking on Statistics > Ports > HSSI in the navigational frame reveals the following subordinate links: Summary, Traffic, Rx Errors, Tx Errors, and Sys Errors. The following sections show examples of these displays.

Viewing HSSI Summary Statistics

Click on Statistics > Ports > HSSI > Summary or on the text HSSI to view HSSI summary statistics. [Figure 7-16](#) shows an example of a HSSI summary statistics display.

Jan 31, 1998 12:47:37 [GMT-9]
Uptime: 1 day 19:47:44



Disabling the interface through which your browser is communicating with the device causes a loss of connectivity with it.

	Slot	Conn	Circuit	Enabled	State	MAC Address	BOFL TMO	MTU	WAN Protocol	Line Number
Disable	5	1	H51	enabled	cawait	00:00:a2:cc:9f:83	1	4608	framerelay	705101

End of table

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Figure 7-16. HSSI Summary Statistics

Viewing HSSI Traffic Statistics

Click on Statistics > Ports > HSSI > Traffic to view HSSI traffic statistics. [Figure 7-17](#) shows an example of a HSSI traffic statistics display.

Jan 31, 1998 12:48:18 [GMT-9]
Uptime: 1 day 19:48:25

HSSI Traffic							
Slot	Conn	Circuit	State	Rx Octets	Rx Packets	Tx Octets	Tx Packets
5	1	H51	cawait	0	0	0	0

End of table

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Figure 7-17. HSSI Traffic Statistics

Viewing HSSI Receive Error Statistics

Click on Statistics > Ports > HSSI > Rx Errors to view HSSI receive error statistics. [Figure 7-18](#) shows an example of a HSSI receive error statistics display.

Jan 31, 1998 12:50:52 [GMT-9]
Uptime: 1 day 19:50:59

HSSI Receive Errors							
Slot	Conn	Circuit	State	CRC Errors	Overruns	Aborts	Too Long
5	1	H51	cawait	0	0	0	0

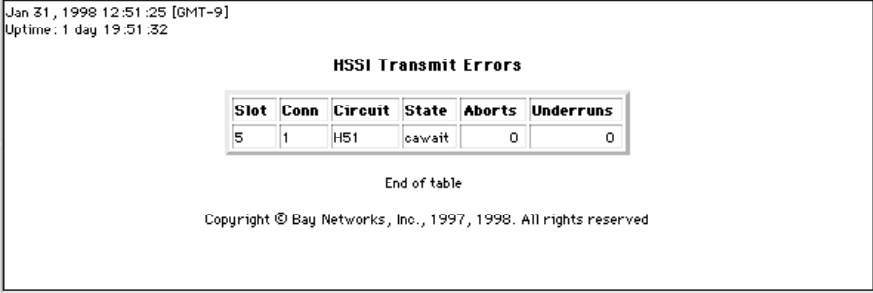
End of table

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Figure 7-18. HSSI Receive Error Statistics

Viewing HSSI Transmit Error Statistics

Click on Statistics > Ports > HSSI > Tx Errors to view HSSI transmit error statistics. [Figure 7-19](#) shows an example of a HSSI transmit error statistics display.



The screenshot shows a web interface with a title bar containing the date and time 'Jan 31, 1998 12:51:25 [GMT-9]' and the uptime 'Uptime: 1 day 19:51:32'. Below this is a table titled 'HSSI Transmit Errors'. The table has six columns: Slot, Conn, Circuit, State, Aborts, and Underruns. The first row of data shows Slot 5, Conn 1, Circuit HS1, State cawait, Aborts 0, and Underruns 0. Below the table is the text 'End of table' and a copyright notice 'Copyright © Bay Networks, Inc., 1997, 1998. All rights reserved'.

Slot	Conn	Circuit	State	Aborts	Underruns
5	1	HS1	cawait	0	0

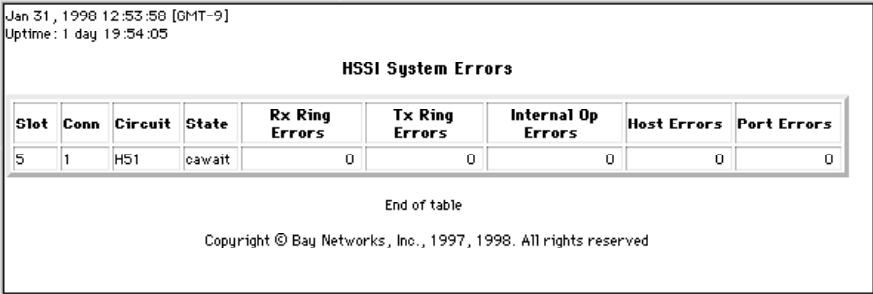
End of table

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Figure 7-19. HSSI Transmit Error Statistics

Viewing HSSI System Error Statistics

Click on Statistics > Ports > HSSI > Sys Errors to view HSSI system error statistics. [Figure 7-20](#) shows an example of a HSSI system error statistics display.



The screenshot shows a web interface with a title bar containing the date and time 'Jan 31, 1998 12:53:58 [GMT-9]' and the uptime 'Uptime: 1 day 19:54:05'. Below this is a table titled 'HSSI System Errors'. The table has nine columns: Slot, Conn, Circuit, State, Rx Ring Errors, Tx Ring Errors, Internal Op Errors, Host Errors, and Port Errors. The first row of data shows Slot 5, Conn 1, Circuit HS1, State cawait, Rx Ring Errors 0, Tx Ring Errors 0, Internal Op Errors 0, Host Errors 0, and Port Errors 0. Below the table is the text 'End of table' and a copyright notice 'Copyright © Bay Networks, Inc., 1997, 1998. All rights reserved'.

Slot	Conn	Circuit	State	Rx Ring Errors	Tx Ring Errors	Internal Op Errors	Host Errors	Port Errors
5	1	HS1	cawait	0	0	0	0	0

End of table

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Figure 7-20. HSSI System Error Statistics


Viewing Token Ring Port Statistics

Clicking on Statistics > Ports > Token Ring in the navigational frame reveals the following subordinate links: Summary, Traffic, Rx Errors, Tx Errors, and Sys Errors. The following sections show examples of these displays.

Viewing Token Ring Summary Statistics

Click on Statistics > Ports > Token Ring > Summary or on the text Token Ring to view token ring summary statistics. [Figure 7-21](#) shows an example of a token ring summary statistics display.

Jan 31, 1998 12:54:57 [GMT-9]
Uptime: 1 day 19:55:03

Token Ring Summary									
 Disabling the interface through which your browser is communicating with the device causes a loss of connectivity with it.									
	Slot	Conn	Circuit	Enabled	State	MAC Address	MTU	Ring Speed	Early Token Release
Disable	0	0	021	enabled	notpresent		4568	mbps16	enabled

End of table

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Figure 7-21. Token Ring Summary Statistics

Viewing Token Ring Traffic Statistics

Click on Statistics > Ports > Token Ring > Traffic to view token ring traffic statistics. [Figure 7-22](#) shows an example of a token ring traffic statistics display.

Jan 31, 1998 12:59:55 [GMT-9]
Uptime: 1 day 20:00:02

Token Ring Traffic

Slot	Conn	Circuit	State	Rx Octets	Rx Packets	Tx Octets	Tx Packets
0	0	021	notpresent	0	0	0	0

End of table

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Figure 7-22. Token Ring Traffic Statistics

Viewing Token Ring Receive Error Statistics

Click on Statistics > Ports > Token Ring > Rx Errors to view token ring receive error statistics. [Figure 7-23](#) shows an example of a token ring receive error statistics display.

Jan 31, 1998 13:01:04 [GMT-9]
Uptime: 1 day 20:01:10

Token Ring Receive Errors

Slot	Conn	Circuit	State	Line Errors	Burst Errors
0	0	021	notpresent	0	0

End of table

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Figure 7-23. Token Ring Receive Error Statistics

Viewing Token Ring Transmit Error Statistics

Click on Statistics > Ports > Token Ring > Tx Errors to view token ring transmit error statistics. [Figure 7-24](#) shows an example of a token ring transmit error statistics display.

Jan 31, 1998 13:02:20 [GMT-9]
Uptime: 1 day 20:02:27

Token Ring Transmit Errors

Slot	Conn	Circuit	State	Lost Packet Errors
0	0	021	notpresent	0

End of table

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Figure 7-24. Token Ring Transmit Error Statistics

Viewing Token Ring System Error Statistics

Click on Statistics > Ports > Token Ring > Sys Errors to view token ring system error statistics. [Figure 7-25](#) shows an example of a token ring system error statistics display.

Jan 31, 1998 13:03:17 [GMT-9]
Uptime: 1 day 20:03:23

Token Ring System Errors

Slot	Conn	Circuit	State	Adapter Checks	DMA Bus Errors	DMA Parity Errors	Command Timeouts	Host Interface Errors
0	0	021	notpresent	0	0	0	0	0

End of table

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Figure 7-25. Token Ring System Error Statistics

Chapter 8

Viewing Router Protocol Statistics

Clicking on Statistics > Protocols displays the following folders in the navigational frame:

- IP
- IPX
- AppleTalk

To get statistical information about any protocol type, click on the appropriate link. Each protocol folder contains links to summary statistics, traffic statistics (number of packets transmitted and received), and interface statistics, as well as to other statistics specific to that protocol. The following sections show and briefly describe these displays.

Topic	Page
Changing the Administrative Status of a Port	8-2
Viewing IP Statistics	8-2
Viewing IPX Statistics	8-11
Viewing AppleTalk Statistics	8-17

Changing the Administrative Status of a Port

A user who has Manager-level access privileges can click on the first column of the table in the interface statistics window for any protocol type to change the administrative setting of the port.



Caution: Disabling the IP interface through which your browser is communicating with the device causes a loss of connectivity with the device.

The Enabled column displays the administrative setting, but it is not a clickable link. The State column shows the operational state of the interface (up or down). If the Enabled column shows that the interface is enabled, but the State column shows that the interface is down, there is a problem with the interface.

Viewing IP Statistics

Clicking on Statistics > Protocols > IP in the navigational frame reveals the following subordinate links: Summary, Traffic, Interfaces, Routes, ARP Cache, RIP, and ICMP. The following sections show examples of these displays.

Viewing IP Summary Statistics

Click on Statistics > Protocols > IP > Summary or on the text IP to view IP summary statistics. [Figure 8-1](#) shows an example of an IP summary statistics display.

Jan 31, 1998 15:05:03 [GMT-9]
Uptime: 1 day 22:05:10

IP Summary	
Configured State	enabled
Current State	up
Forwarding Mode	forwarding
Zero/All Ones Subnetting	disabled
Default TTL	30
RIP Diameter	15
Route Cache Size	60
Maximum Policy Rules	32
Estimated Networks	0
Actual Networks	179
Estimated Hosts	0
Actual Hosts	4
Classless	disabled
Route Filters	enabled

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Figure 8-1. IP Summary Statistics

Viewing IP Traffic Statistics

Click on Statistics > Protocols > IP > Traffic or on the word Protocols to view IP traffic statistics. [Figure 8-2](#) shows an example of an IP traffic statistics display.

Jan 31, 1998 15:07:21 [GMT-9]
Uptime: 1 day 22:07:27

IP Traffic						
Circuit	IP Address	Rx Packets	Tx Packets	Forwarded Packets	Rx Discards	Tx Discards
S11	11.11.11.2	0	0	0	0	0
S12	12.12.12.1	0	0	0	0	0
H51	13.13.13.1	0	0	0	0	0
F31	15.15.15.1	0	2	0	0	0
E132	20.20.20.114	0	0	0	0	0
S128	21.21.21.114	0	0	0	0	0
O21	100.100.100.114	0	0	0	0	0
E131	192.168.133.114	254161	83608	5717	0	0

End of table
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Figure 8-2. IP Traffic Statistics

Viewing IP Interface Statistics

Click on Statistics > Protocols > IP > Interfaces to view IP interface statistics. [Figure 8-3](#) shows an example of an IP interface statistics display.

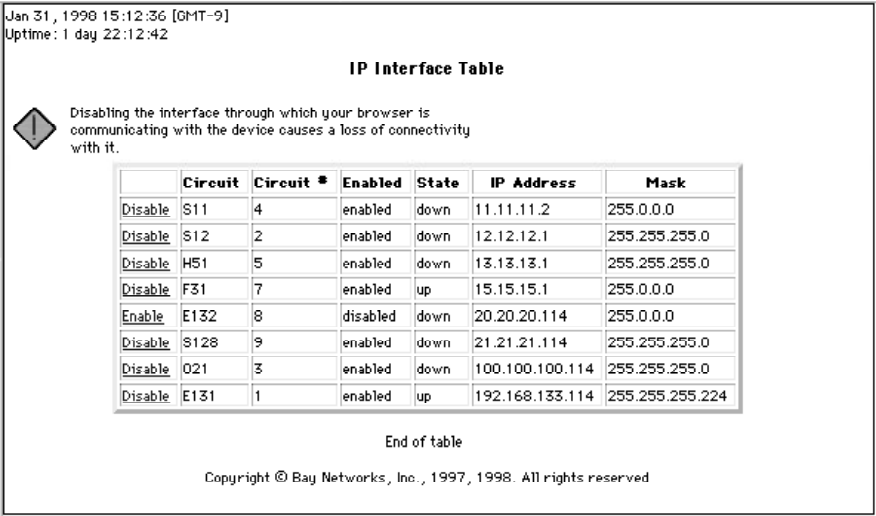


Figure 8-3. IP Interface Statistics

Viewing IP Route Statistics

Click on Statistics > Protocols > IP > Routes to view IP routing table statistics. [Figure 8-4](#) shows an example of an IP routing table statistics display.

Jan 31, 1998 15:20:50 [GMT-9]
Uptime: 1 day 22:20:57

IP Routing Table
Routing pool contains 179 [est. 0] networks/subnets.

Destination	Mask	Proto	Age	Cost	Next Hop Addr
15.0.0.0	255.0.0.0	local	99778	0	15.15.15.1
132.245.0.0	255.255.0.0	rip	17	2	192.168.133.97
134.177.0.0	255.255.0.0	rip	17	3	192.168.133.97
141.251.0.0	255.255.0.0	rip	17	3	192.168.133.97
172.24.0.0	255.255.0.0	rip	17	2	192.168.133.97
172.33.0.0	255.255.0.0	rip	17	2	192.168.133.97
172.35.0.0	255.255.0.0	rip	17	2	192.168.133.97
192.32.2.0	255.255.255.0	rip	17	3	192.168.133.97
192.32.3.0	255.255.255.0	rip	18	3	192.168.133.97
192.32.4.0	255.255.255.0	rip	18	3	192.168.133.97

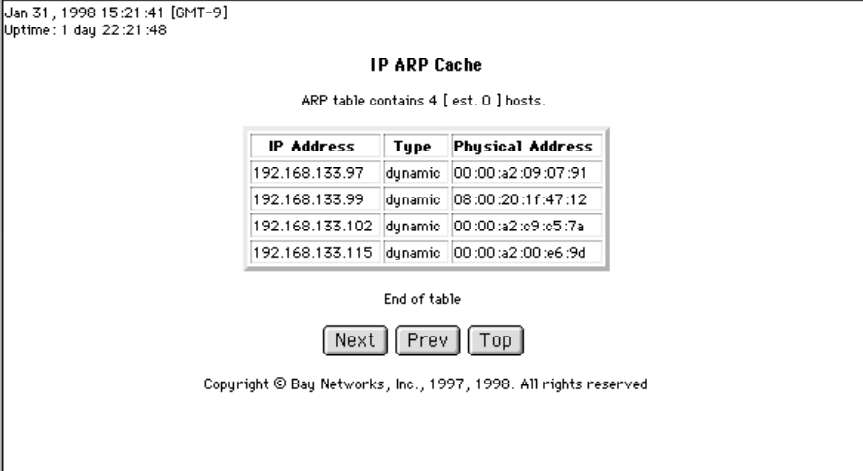
Next Prev Top

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Figure 8-4. IP Route Statistics

Viewing IP ARP Cache Statistics

Click on Statistics > Protocols > IP > ARP Cache to view IP ARP cache statistics. [Figure 8-5](#) shows an example of an IP ARP cache statistics display.



Jan 31, 1998 15:21:41 [GMT-9]
Uptime: 1 day 22:21:48

IP ARP Cache

ARP table contains 4 [est. 0] hosts.

IP Address	Type	Physical Address
192.168.133.97	dynamic	00:00:a2:09:07:91
192.168.133.99	dynamic	08:00:20:1f:47:12
192.168.133.102	dynamic	00:00:a2:09:05:7a
192.168.133.115	dynamic	00:00:a2:00:e6:9d

End of table

[Next](#) [Prev](#) [Top](#)

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Figure 8-5. IP ARP Cache Statistics

Viewing IP RIP Interface Statistics

Click on Statistics > Protocols > IP > RIP to view RIP interface table statistics. [Figure 8-6](#) shows an example of an IP RIP interface table statistics display.

Jan 31, 1998 15:23:02 [GMT-9]
Uptime: 1 day 22:23:09

RIP Interface Table									
IP Interface	State	RIP Supply	RIP Listen	Default Route Supply	Default Route Listen	Poison Reverse	RIP Mode	Triggered Update	TTL
0.0.0.0	notpres	enabled	enabled	disabled	disabled	poisoned	rip1	disabled	1
0.0.0.0	notpres	enabled	enabled	disabled	disabled	poisoned	rip1	disabled	1
0.0.0.0	notpres	enabled	enabled	disabled	disabled	poisoned	rip1	disabled	1
15.15.15.1	up	disabled	enabled	disabled	disabled	poisoned	rip1	disabled	1
0.0.0.0	notpres	enabled	enabled	disabled	disabled	poisoned	rip1	disabled	1
0.0.0.0	notpres	enabled	enabled	disabled	disabled	poisoned	rip1	disabled	1
0.0.0.0	notpres	enabled	enabled	disabled	disabled	poisoned	rip1	disabled	1
192.168.133.114	up	enabled	enabled	disabled	disabled	poisoned	rip1	disabled	1

End of table

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Figure 8-6. IP RIP Interface Statistics

Viewing IP ICMP Statistics

Clicking on Statistics > Protocols > IP > ICMP (Internet Control Message Protocol) in the navigational frame reveals the following subordinate links: Counters, Received, and Transmitted. The following sections show examples of these displays.

Viewing ICMP Counter Statistics

Click on Statistics > Protocols > IP > ICMP > Counters or on the text ICMP to view ICMP counters statistics. [Figure 8-7](#) shows an example of an ICMP counters display.

Jan 31, 1998 15:25:53 [GMT-9]
Uptime: 1 day 22:26:00

ICMP Counters											
Circuit	IP Address	Echo		Timestamp		Address Mask		Source Quench		Redirect	
		Req.	Repl.	Req.	Repl.	Req.	Repl.	Rx	Tx	Rx	Tx
S11	11.11.11.2	0	0	0	0	0	0	0	0	0	0
S12	12.12.12.1	0	0	0	0	0	0	0	0	0	0
H51	13.13.13.1	0	0	0	0	0	0	0	0	0	0
F31	15.15.15.1	0	0	0	0	0	0	0	0	0	0
E132	20.20.20.114	0	0	0	0	0	0	0	0	0	0
S128	21.21.21.114	0	0	0	0	0	0	0	0	0	0
O21	100.100.100.114	0	0	0	0	0	0	0	0	0	0
E131	192.168.133.114	74	0	0	0	0	0	0	0	0	0

End of table
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Figure 8-7. ICMP Counter Statistics

Viewing ICMP Received Statistics

Click on Statistics > Protocols > IP > ICMP > Received to view ICMP received statistics. [Figure 8-8](#) shows an example of an ICMP received statistics display.

Jan 31, 1998 15:27:41 [GMT-9] Uptime: 1 day 22:27:48						
ICMP Received						
Circuit	IP Address	Rx Packets	Rx Errors	Rx Destination Unreachable	Rx Time Exceeded	Rx Parameter Problem
S11	11.11.11.2	0	0	0	0	0
S12	12.12.12.1	0	0	0	0	0
H51	13.13.13.1	0	0	0	0	0
F31	15.15.15.1	0	0	0	0	0
E132	20.20.20.114	0	0	0	0	0
S128	21.21.21.114	0	0	0	0	0
O21	100.100.100.114	0	0	0	0	0
E131	192.168.133.114	74	0	0	0	0
End of table						
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Figure 8-8. ICMP Received Statistics

Viewing ICMP Transmitted Statistics

Click on Statistics > Protocols > IP > ICMP > Transmitted to view ICMP transmitted statistics. [Figure 8-9](#) shows an example of an ICMP transmitted statistics display.

Jan 31, 1998 15:28:50 [GMT-9]
Uptime: 1 day 22:28:57

ICMP Transmitted						
Circuit	IP Address	Tx Packets	Tx Errors	Tx Destination Unreachable	Tx Time Exceeded	Tx Parameter Problem
S11	11.11.11.2	0	0	0	0	0
S12	12.12.12.1	0	0	0	0	0
H51	13.13.13.1	0	0	0	0	0
F31	15.15.15.1	0	0	0	0	0
E132	20.20.20.114	0	0	0	0	0
S128	21.21.21.114	0	0	0	0	0
O21	100.100.100.114	0	0	0	0	0
E131	192.168.133.114	75	0	1	0	0

End of table

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Figure 8-9. ICMP Transmitted Statistics

Viewing IPX Statistics

Clicking on Statistics > Protocols > IPX in the navigational frame reveals the following subordinate links: Summary, Traffic, Interfaces, Forwarding, Hosts, Routes, Services, RIP, and SAP. The following sections show examples of these displays.

Viewing IPX Summary Statistics

Click on Statistics > Protocols > IPX > Summary or on the text IPX to view IPX summary statistics. [Figure 8-10](#) shows an example of an IPX summary statistics display.

Jan 31, 1998 15:31:05 [GMT-9]
Uptime: 1 day 22:31:12

IPX Summary Information	
Configured State	enabled
Current State	up
Multiple Host Address	enabled
Routing Method	tick
Maximum Path	1
Maximum Path Splits	1
Log Filter Setting	16
Estimated Networks	0
Actual Networks	3
Estimated Hosts	0
Actual Hosts	6
Estimated Services	0
Actual Services	1

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Figure 8-10. IPX Summary Statistics

Viewing IPX Traffic Statistics

Click on Statistics > Protocols > IPX > Traffic to view IPX traffic statistics. [Figure 8-11](#) shows an example of an IPX traffic statistics display.

Jan 31, 1998 15:32:37 [GMT-9]
Uptime: 1 day 22:32:44

IPX Traffic

Circuit	IPX Network	Rx Packets	Rx Delivered	Tx Packets	Forwarded Packets	Rx Discards	Tx Discards
E131	0x00001234	0	0	11379	11379	0	0
O21		0	0	0	0	0	0
F31	0x00000020	0	0	4707	4707	0	0
E132	0x12345678	2148	2148	8213	8213	0	0

End of table

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Figure 8-11. IPX Traffic Statistics

Viewing IPX Interface Statistics

Click on Statistics > Protocols > IPX > Interfaces to view IPX interface table statistics. [Figure 8-12](#) shows an example of an IPX interface table statistics display.

Jan 31, 1998 15:34:02 [GMT-9]
Uptime: 1 day 22:34:09

IPX Interface Table

	Circuit	Configured State	Current State	Network Address	Host Address	Encapsulation Method
Disable	E131	enabled	up	0x00001234	00:00:a2:cb:6e:14	lsap
Enable	O21	disabled	down			ethernet
Disable	F31	enabled	up	0x00000020	00:00:a2:0d:af:d2	lsap
Disable	E132	enabled	up	0x12345678	00:00:a2:cb:6e:15	ethernet

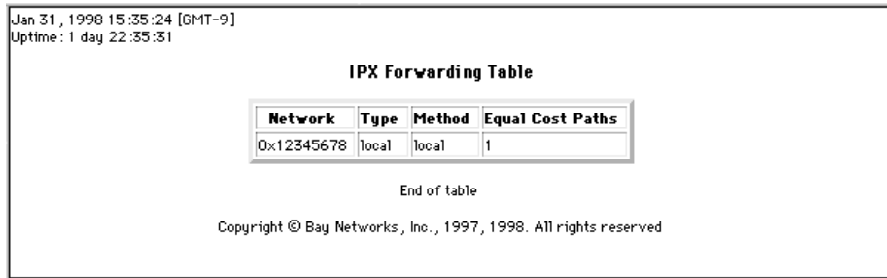
End of table

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Figure 8-12. IPX Interface Statistics

Viewing IPX Forwarding Statistics

Click on Statistics > Protocols > IPX > Forwarding to view IPX forwarding table statistics. [Figure 8-13](#) shows an example of an IPX forwarding table statistics display.



Jan 31, 1998 15:35:24 [GMT-9]
Uptime: 1 day 22:35:31

IPX Forwarding Table

Network	Type	Method	Equal Cost Paths
0x12345678	local	local	1

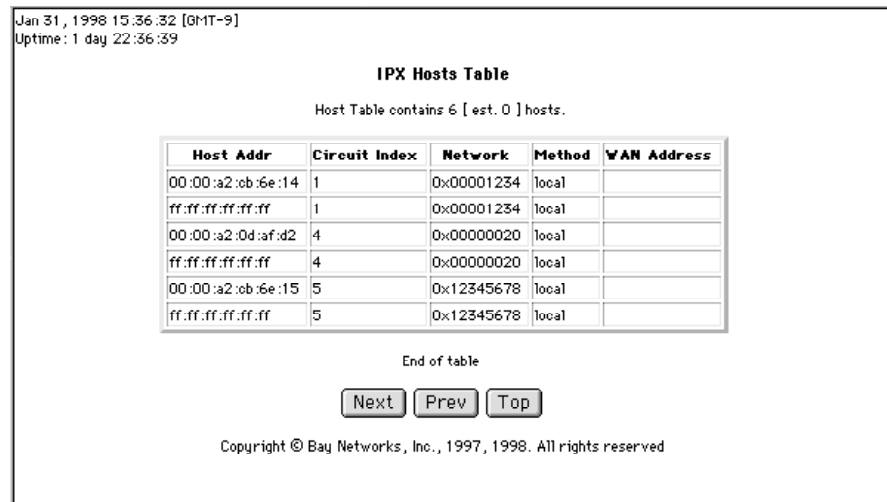
End of table

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Figure 8-13. IPX Forwarding Statistics

Viewing IPX Host Statistics

Click on Statistics > Protocols > IPX > Hosts to view IPX hosts table statistics. [Figure 8-14](#) shows an example of an IPX hosts table statistics display.



Jan 31, 1998 15:36:32 [GMT-9]
Uptime: 1 day 22:36:39

IPX Hosts Table

Host Table contains 6 [est. 0] hosts.

Host Addr	Circuit Index	Network	Method	WAN Address
00:00:a2:0b:6e:14	1	0x00001234	local	
ff:ff:ff:ff:ff:ff	1	0x00001234	local	
00:00:a2:0d:af:d2	4	0x00000020	local	
ff:ff:ff:ff:ff:ff	4	0x00000020	local	
00:00:a2:0b:6e:15	5	0x12345678	local	
ff:ff:ff:ff:ff:ff	5	0x12345678	local	

End of table

[Next](#) [Prev](#) [Top](#)

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Figure 8-14. IPX Host Statistics

Viewing IPX Route Statistics

Click on Statistics > Protocols > IPX > Routes to view IPX routing table statistics. [Figure 8-15](#) shows an example of an IPX routes statistics display.

Jan 31, 1998 15:38:33 [GMT-9]
Uptime: 1 day 22:38:40

IPX Routing Table

Routing pool contains 3 [est. 0] networks.

Destination	Next Hop Network	Next Hop Host	Metric	Age	Interface
0x00000020	0x00000020	00:00:a2:0d:af:d2	0	0	4
0x00001234	0x00001234	00:00:a2:0b:6e:14	0	0	1
0x12345678	0x12345678	00:00:a2:0b:6e:15	0	0	5

End of table

[Next](#) [Prev](#) [Top](#)

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Figure 8-15. IPX Route Statistics

Viewing IPX Service Statistics

Click on Statistics > Protocols > IPX > Services to view IPX service table statistics. [Figure 8-16](#) shows an example of an IPX services display.

Jan 31, 1998 15:40:07 [GMT-9]
Uptime: 1 day 22:40:14

IPX Services Table

Service Table contains 1 [est. 0] Services.

Service Name	Type	Next Hop Network	Next Hop Host Address	Network	Age	Hops
static.print server	0007	0x00000020	12:34:56:78:9a:bc	0x00001234	0	1

End of table

[Next](#) [Prev](#) [Top](#)

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Figure 8-16. IPX Service Statistics

Viewing IPX RIP Interface Statistics

Click on Statistics > Protocols > IPX > RIP to view IPX RIP interface statistics. [Figure 8-17](#) shows an example of an IPX RIP interface statistics display.

Jan 31, 1998 15:41:28 [GMT-9]
Uptime: 1 day 22:41:35

IPX RIP Interfaces								
Circuit Index	RIP Interface	Configured State	Current State	Update Int. (sec)	Mode	Rx Packets	Tx Packets	Bad Packets
1	0x00001234	enabled	up	60	standard	0	6294	0
0		enabled	notpresent	60	listen	0	0	0
4	0x00000020	enabled	up	60	standard	0	3722	0
5	0x12345678	enabled	up	60	standard	1022	4106	0

End of table

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Figure 8-17. IPX RIP Interface Statistics

Viewing IPX SAP Statistics

Click on Statistics > Protocols > IPX > SAP to view IPX SAP interface statistics. [Figure 8-18](#) shows an example of an IPX SAP interface statistics display.

Jan 31, 1998 15:56:00 [GMT-9]
Uptime: 1 day 22:56:06

IPX SAP Interfaces								
Circuit Index	SAP Interface	Configured State	Current State	Update Interval	Mode	Rx Packets	Tx Packets	Bad Packets
1	0x00001234	enabled	up	60	standard	0	5118	0
0		enabled	notpresent	60	listen	0	0	0
4	0x00000020	enabled	up	60	standard	0	994	0
5	0x12345678	enabled	up	60	standard	1126	4138	0

End of table

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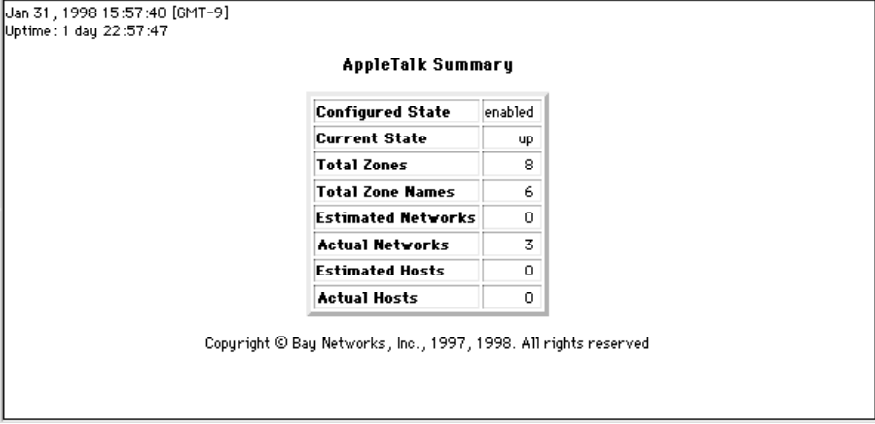
Figure 8-18. IPX SAP Interface Statistics

Viewing AppleTalk Statistics

Clicking on Statistics > Protocols > AppleTalk in the navigational frame reveals the following subordinate links: Summary, Traffic, Interfaces, Routes, ARP Cache, and Zones. The following sections show examples of these displays.

Viewing AppleTalk Summary Statistics

Click on Statistics > Protocols > AppleTalk > Summary or on the text AppleTalk to view AppleTalk summary statistics. [Figure 8-19](#) shows an example of an AppleTalk summary statistics display.



Jan 31, 1998 15:57:40 [GMT-9] Uptime: 1 day 22:57:47	
AppleTalk Summary	
Configured State	enabled
Current State	up
Total Zones	8
Total Zone Names	6
Estimated Networks	0
Actual Networks	3
Estimated Hosts	0
Actual Hosts	0
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Figure 8-19. AppleTalk Summary Statistics

Viewing AppleTalk Traffic Statistics

Click on Statistics > Protocols > AppleTalk > Traffic to view AppleTalk traffic statistics. [Figure 8-20](#) shows an example of an AppleTalk traffic statistics display.

Jan 31, 1998 16:01:20 [GMT-9]
Uptime: 1 day 23:01:27

AppleTalk Traffic

Circuit	Zone	Network	Node	State	Rx Packets	Tx Packets
E131	default_zone	100	114	up	0	24673
O21		0	0	down	0	0
F31	default_zone	500	114	up	0	17067
E132	default_zone	400	114	up	0	24673

End of table

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Figure 8-20. AppleTalk Traffic Statistics

Viewing AppleTalk Interface Statistics

Click on Statistics > Protocols > AppleTalk > Interfaces to view AppleTalk interface table statistics. [Figure 8-21](#) shows an example of an AppleTalk interface table statistics display.

Feb 4, 1998 10:34:28 [GMT-9]
Uptime: 1 day 20:19:37

AppleTalk Interface Table

	Circuit	Enabled	State	Zone	Network	Node
Disable	E131	enabled	up	default_zone	100	114
Disable	O21	enabled	up	default_zone	200	114
Disable	F31	enabled	up	default_zone	500	114
Disable	E132	enabled	up	default_zone	400	114

End of table

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Figure 8-21. AppleTalk Interface Statistics

Viewing AppleTalk Route Statistics

Click on Statistics > Protocols > AppleTalk > Routes to view AppleTalk routing table statistics. [Figure 8-22](#) shows an example of an AppleTalk routes statistics display.

Jan 31, 1998 16:04:08 [GMT-9]
Uptime: 1 day 23:04:15

AppleTalk Routing Table

Routing pool contains 3 [est. 0] networks.

Circuit	First Net	Last Net	Next Hop Net	Next Hop Node	Metric	State
E131	100	199	100	114	0	good
E132	400	499	400	114	0	good
F31	500	599	500	114	0	good

End of table

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Figure 8-22. AppleTalk Route Statistics

Viewing AppleTalk ARP Cache Statistics

Click on Statistics > Protocols > AppleTalk > ARP Table to view AppleTalk ARP table statistics. [Figure 8-23](#) shows an example of an AppleTalk ARP table statistics display.

Jan 31, 1998 16:05:34 [GMT-9]
Uptime: 1 day 23:05:41

AppleTalk ARP Table

Host table contains 0 [est. 0] hosts.

Network Address	Node Address	Physical Address	Circuit
-----------------	--------------	------------------	---------

End of table

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Figure 8-23. AppleTalk ARP Table Statistics

Viewing AppleTalk Zone Statistics

Click on Statistics > Protocols > AppleTalk > Zones to view AppleTalk zone table statistics. [Figure 8-24](#) shows an example of an AppleTalk zone table statistics display.

Jan 31, 1998 16:07:33 [GMT-9]
Uptime: 1 day 23:07:40

AppleTalk Zone Table

Zone Table contains 8 zones and 6 zone names.

Zone Name	First Net	Last Net	State
default_zone	100	199	valid
Test zone 1	100	199	valid
Test zone 2	100	199	valid
test zone 3	100	199	valid
default_zone	400	499	valid
Testing 1	400	499	valid
default_zone	500	599	valid
Test zone 10	500	599	valid

End of table

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Figure 8-24. AppleTalk Zone Statistics

Chapter 9

Customizing HTTP Server Parameters

When you start the HTTP Server on the router, default values are in effect for all parameters. Depending on the requirements of your network, you may want to change some of these values. This chapter includes the following information:

Topic	Page
Disabling and Reenabling the HTTP Server	9-2
Specifying the Port Number for the HTTP Server	9-3
Specifying the Maximum Number of Cached Archives	9-4
Specifying the Maximum Time of Cached Archives	9-5

For a description of all Site Manager parameters for HTTP Server, see [Appendix A](#), “Site Manager Parameters.”

Disabling and Reenabling the HTTP Server

When you start the HTTP Server on a router, the HTTP Server is enabled by default. Using either the BCC or Site Manager, you can disable and reenabling the HTTP Server.

Using the BCC

To disable or reenabling the HTTP Server, navigate to the http prompt and enter:

```
state state
```

state is enabled or disabled.

For example, to disable the HTTP Server, enter the following command:

```
http# state disabled
```

Using Site Manager

To disable or reenabling the HTTP Server, complete the following tasks:

Site Manager Procedure	
You do this	System responds
1. In the Configuration Manager window, choose Protocols .	The Protocols menu opens.
2. Choose Global Protocols .	The Global Protocols menu opens.
3. Choose HTTP .	The HTTP menu opens.
4. Choose Global .	The Edit HTTP Global Parameters window opens.
5. Set the Enable/Disable parameter. Click on Help or see the parameter description on page A-3 .	
6. Click on OK .	You return to the Configuration Manager window.

Specifying the Port Number for the HTTP Server

By default, the HTTP Server is enabled on port 80. Using the BCC or Site Manager, you can specify a different port.

Using the BCC

To specify the port number on which you are enabling the HTTP Server, navigate to the `http` prompt and enter:

port *number*

number is a value from 0 to 4096.

For example, to set the HTTP Server port number to 100, enter the following command:

```
http# port 100
```

Using Site Manager

To specify the port number on which you are enabling the HTTP Server, complete the following tasks:

Site Manager Procedure	
You do this	System responds
1. In the Configuration Manager window, choose Protocols .	The Protocols menu opens.
2. Choose Global Protocols .	The Global Protocols menu opens.
3. Choose HTTP .	The HTTP menu opens.
4. Choose Global .	The Edit HTTP Global Parameters window opens.
5. Set the Port parameter. Click on Help or see the parameter description on page A-3 .	
6. Click on OK .	You return to the Configuration Manager window.

Specifying the Maximum Number of Cached Archives

By default, the HTTP Server stores in cache up to three archives on the router. Using the BCC or Site Manager, you can specify a different maximum number of cached archives.



Note: Increasing the default value can improve performance for multiple simultaneous requests, but at the cost of greater memory usage.

Using the BCC

To specify the maximum number of archives cached on the router, navigate to the `http` prompt and enter:

max-cached-archives *number*

number is an integer from 3 to 10.

For example, to set the maximum number of cached archives to 8, enter the following command:

`http# max-cached-archives 8`

Using Site Manager

To specify the maximum number of archives cached on the router, complete the following tasks:

Site Manager Procedure	
You do this	System responds
1. In the Configuration Manager window, choose Protocols .	The Protocols menu opens.
2. Choose Global Protocols .	The Global Protocols menu opens.
3. Choose HTTP .	The HTTP menu opens.
4. Choose Global .	The Edit HTTP Global Parameters window opens.

(continued)

Site Manager Procedure <i>(continued)</i>	
You do this	System responds
5. Set the Max Cache Count parameter. Click on Help or see the parameter description on page A-3 .	
6. Click on OK .	You return to the Configuration Manager window.

Specifying the Maximum Time of Cached Archives

By default, the maximum amount of time that an archive remains in system RAM (cache) is 3 seconds. Using the BCC or Site Manager, you can specify a different maximum time for cached archives.

Using the BCC

To specify the maximum time (in seconds) that an archive remains in system RAM (cache), navigate to the http prompt and enter:

cache-aging-timer *number*

number is an integer from 1 to 10.

For example, to set the maximum time to 6 seconds, enter the following command:

```
http# cache-aging-timer 6
```

Using Site Manager

To specify the maximum time (in seconds) that an archive remains in system RAM (cache), complete the following tasks:

Site Manager Procedure	
You do this	System responds
1. In the Configuration Manager window, choose Protocols .	The Protocols menu opens.
2. Choose Global Protocols .	The Global Protocols menu opens.
3. Choose HTTP .	The HTTP menu opens.
4. Choose Global .	The Edit HTTP Global Parameters window opens.
5. Set the Max Cache Age (seconds) parameter. Click on Help or see the parameter description on page A-4 .	
6. Click on OK .	You return to the Configuration Manager window.

Appendix A

Site Manager Parameters

This appendix contains the Site Manager parameter descriptions for the HTTP Server. You can display the same information using Site Manager online Help.

For each parameter, this appendix provides the following information:

- Parameter name
- Configuration Manager menu path
- Default setting
- Valid parameter options
- Parameter function
- Instructions for setting the parameter
- Management information base (MIB) object ID

The Technician Interface allows you to modify parameters by issuing **set** and **commit** commands with the MIB object ID. This process is equivalent to modifying parameters using Site Manager. For more information about using the Technician Interface to access the MIB, see *Using Technician Interface Software*.



Caution: The Technician Interface does not verify the validity of your parameter values. Entering an invalid value can corrupt your configuration.

The Edit HTTP Global Parameters window ([Figure A-1](#)) contains the parameters that you can configure for the HTTP Server.

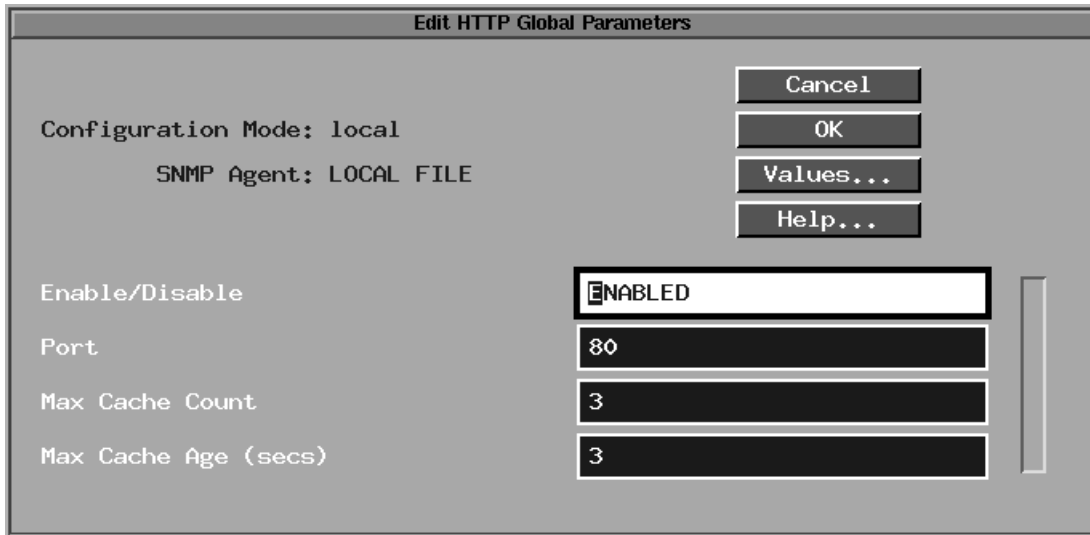


Figure A-1. Edit HTTP Global Parameters Window

To access the Edit HTTP Global Parameters window, complete the following tasks:

Site Manager Procedure	
You do this	System responds
1. In the Configuration Manager window, choose Protocols .	The Protocols menu opens.
2. Choose Global Protocols .	The Global Protocols menu opens.
3. Choose HTTP .	The HTTP menu opens.
4. Choose Global .	The Edit HTTP Global Parameters window opens.

The parameter descriptions follow.

Parameter: Enable/Disable

Path: Configuration Manager > Protocols > Global Protocols > HTTP > Global

Default: When you enable the HTTP Server, this parameter is automatically set to Enabled.

Options: Enabled | Disabled

Function: Enables or disables the HTTP Server on this interface.

Instructions: To prohibit the use of the HTTP Server on this interface, set this parameter to Disabled.

MIB Object ID: 1.3.6.1.4.1.18.3.5.3.22.1.1.2

Parameter: Port

Path: Configuration Manager > Protocols > Global Protocols > HTTP > Global

Default: 80

Options: 0 to 4096

Function: Specifies the port number on which you enable the HTTP Server.

Instructions: Accept the default value, 80, or specify a value from 0 to 4096.

MIB Object ID: 1.3.6.1.4.1.18.3.5.3.22.1.1.4

Parameter: Max Cache Count

Path: Configuration Manager > Protocols > Global Protocols > HTTP > Global

Default: 3

Options: 3 to 10

Function: Specifies the maximum number of archives cached on the router. Increasing this value can improve performance for multiple simultaneous requests, but at the cost of greater memory usage.

Instructions: Accept the default value, 3, or specify a value from 3 to 10.

MIB Object ID: 1.3.6.1.4.1.18.3.5.3.22.1.1.5

Parameter: Max Cache Age (seconds)

Path: Configuration Manager > Protocols > Global Protocols > HTTP > Global

Default: 3

Options: 1 to 10

Function: Specifies the maximum time (in seconds) that an archive remains in system RAM (cache).

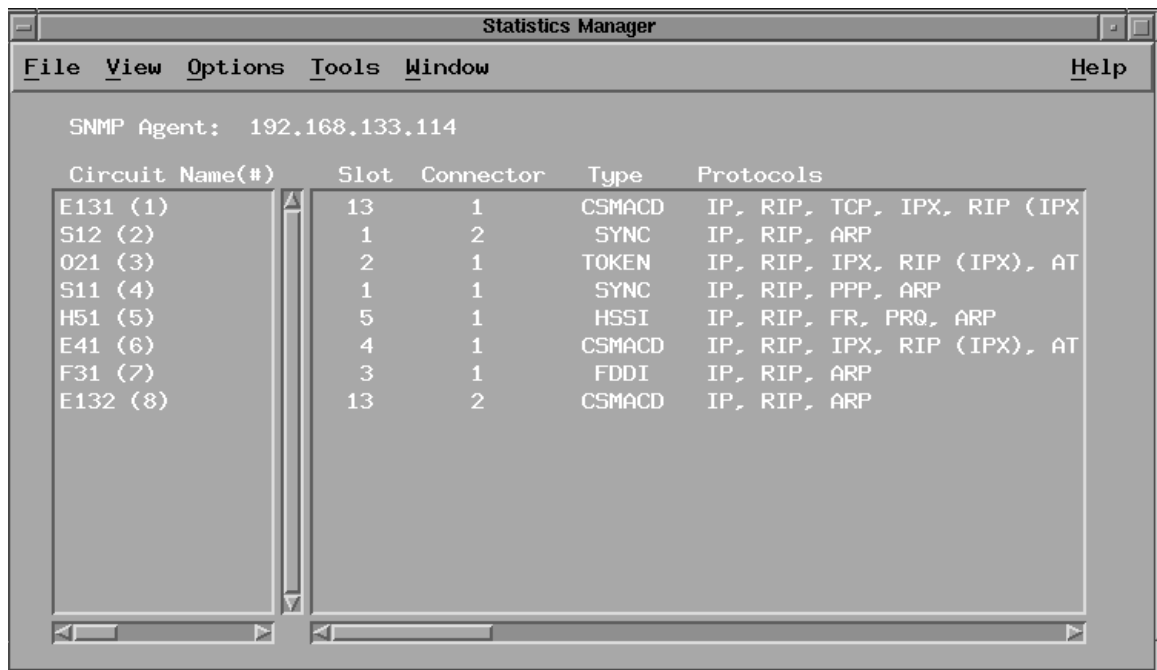
Instructions: Accept the default value, 3, or specify a value from 1 to 10.

MIB Object ID: 1.3.6.1.4.1.18.3.5.3.22.1.1.6

Appendix B

Viewing HTTP Server Statistics Using the Statistics Manager

Statistical information for the HTTP Server is also available through the Site Manager Statistics Manager tool. To use the Statistics Manager, click on Statistics on the toolbar or choose Tools > Statistics Manager from the Site Manager menu. Select the router that you want to monitor. The Statistics Manager window appears ([Figure B-1](#)), showing the device IP address and, for each circuit on that device, showing the slot, connector, type, and protocols.



The screenshot shows a window titled "Statistics Manager" with a menu bar (File, View, Options, Tools, Window, Help) and a status bar (SNMP Agent: 192.168.133.114). The main area contains a table with the following data:

Circuit Name(#)	Slot	Connector	Type	Protocols
E131 (1)	13	1	CSMACD	IP, RIP, TCP, IPX, RIP (IPX)
S12 (2)	1	2	SYNC	IP, RIP, ARP
O21 (3)	2	1	TOKEN	IP, RIP, IPX, RIP (IPX), AT
S11 (4)	1	1	SYNC	IP, RIP, PPP, ARP
H51 (5)	5	1	HSSI	IP, RIP, FR, PRQ, ARP
E41 (6)	4	1	CSMACD	IP, RIP, IPX, RIP (IPX), AT
F31 (7)	3	1	FDDI	IP, RIP, ARP
E132 (8)	13	2	CSMACD	IP, RIP, ARP

Figure B-1. Statistics Manager Window

Selecting the Screens to Display

Use the Screen Manager Tool to select the screens to display. In the Statistics Manager window, click on Tools > Screen Manager. Add the HTTP screens to the list of those to display, then exit the Screen Manager.

Starting the Statistics Launch Facility

In the Statistics Manager window, click on Tools > Launch Facility to display the Statistics Launch Facility window ([Figure B-2](#)), which lets you choose the type of statistical information that you want to view for this device.

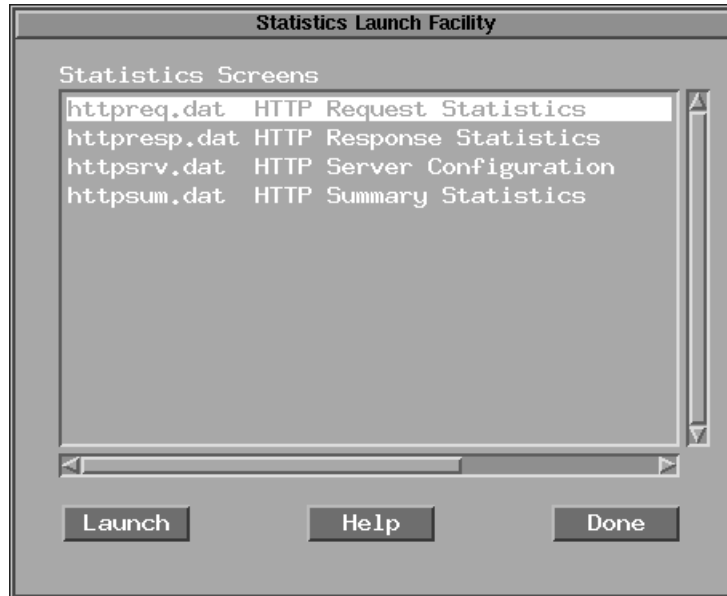



Figure B-2. Statistics Launch Facility Window

Click on the line that indicates the type of information you want to display, then click on Launch. To return to this window, click on File > Exit in the resulting window. The following sections show the resulting windows for each selection.

Viewing HTTP Request Statistics

When you choose `httpreq.dat` (HTTP Request Statistics), a window like that in [Figure B-3](#) appears, showing the method and total requests.

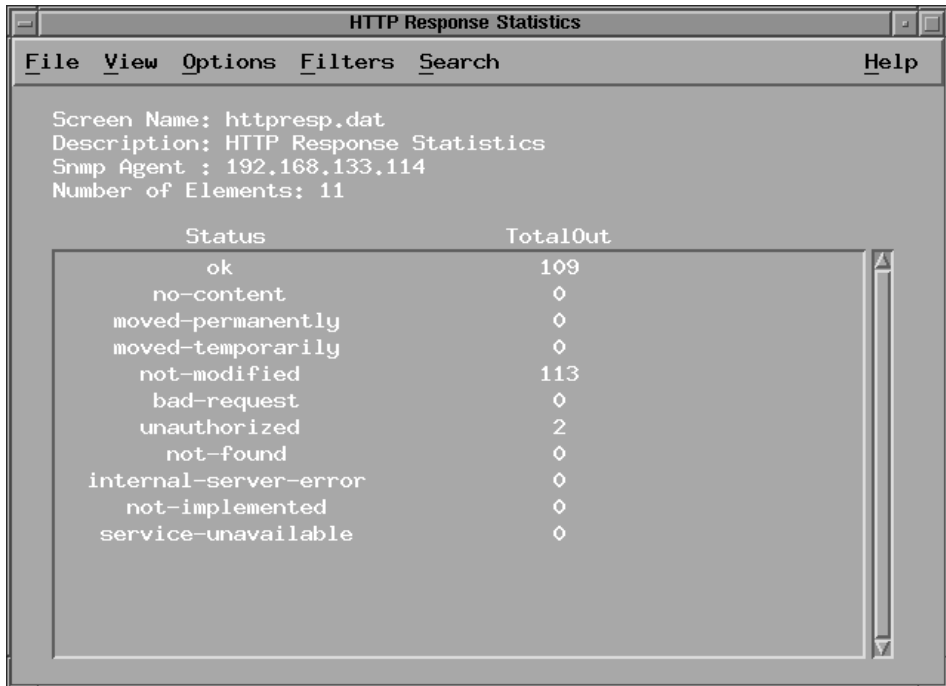


Method	TotalIn
get	329
head	0
post	8

Figure B-3. HTTP Request Statistics Window

Viewing HTTP Response Statistics

When you choose httpresp.dat (HTTP Response Statistics), the HTTP Response Statistics window appears (Figure B-4), showing the number of times the server responds for each status type; for example, in [Figure B-4](#), there are two “unauthorized” responses.



The screenshot shows a window titled "HTTP Response Statistics" with a menu bar (File, View, Options, Filters, Search, Help). Below the menu bar, the following text is displayed:

```
Screen Name: httpresp.dat
Description: HTTP Response Statistics
Snmp Agent : 192.168.133.114
Number of Elements: 11
```

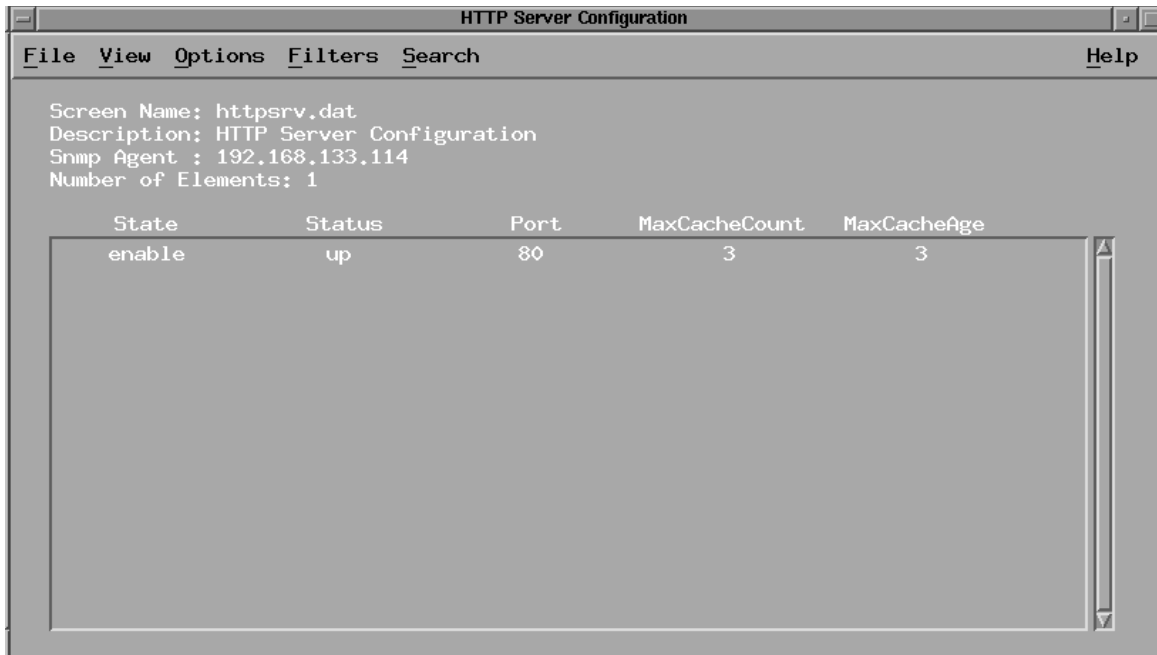
Below this text is a table with two columns: "Status" and "TotalOut". The table contains the following data:

Status	TotalOut
ok	109
no-content	0
moved-permanently	0
moved-temporarily	0
not-modified	113
bad-request	0
unauthorized	2
not-found	0
internal-server-error	0
not-implemented	0
service-unavailable	0

Figure B-4. HTTP Response Statistics Window

Viewing HTTP Server Configuration Statistics

When you choose `httpsrv.dat` (HTTP Server Configuration), a window like that in [Figure B-5](#) appears, showing the state (enabled or disabled), operational status, port, maximum cache count (maximum number of stored archives), and maximum cache age in seconds.



The screenshot shows a window titled "HTTP Server Configuration". It has a menu bar with "File", "View", "Options", "Filters", "Search", and "Help". The main content area displays the following text:

```
Screen Name: httpsrv.dat
Description: HTTP Server Configuration
Snmp Agent : 192.168.133.114
Number of Elements: 1
```

State	Status	Port	MaxCacheCount	MaxCacheAge
enable	up	80	3	3

Figure B-5. HTTP Server Configuration Window

Viewing HTTP Summary Statistics

When you choose `httpsum.dat` (HTTP Summary Statistics), a window like that in [Figure B-6](#) appears, showing an overview of the router's current state. These statistics include the total requests received, total number of request errors, total number of discarded requests, total number of responses, total unknown inputs, total bytes received, total bytes sent, total number of timeouts, and the start time.



The screenshot shows a window titled "HTTP Summary Statistics" with a menu bar (File, View, Options, Filters, Search) and a Help button. The main area displays the following text:

```
Screen Name: httpsum.dat
Description: HTTP Summary Statistics
Snap Agent : 192.168.133.134
Number of Elements: 1
```

TotReqRcvd	TotReqErr	TotReqDiscd	TotResp	TotInUnkn	TotInByte	TotOutByte	TotTimeout	StrtTime
392	5	0	331	0	112314	456077	0	2298

Figure B-6. HTTP Summary Statistics Window

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